THE MARINE RECORD

ESTABLISHED 1878

VOL. XX. No. 1. CLEVELAND---DECEMBER 31, 1896---CHICAGO. $2.00 Per Year. 10c. Single Copy.

ABOLITION OF CERTAIN CANADIAN FEES.

In the course of routine business in June, 1895, the attention of the Bureau of Navigation was called incidentally by the collector of customs at Port Huron, Mich., to the fact that the Canadian government was imposing certain fees upon the entry and clearance of American vessels into and from Canadian ports from which British (Canadian) vessels were exempt. This appeared so obviously to be a discrimination against American vessels that an inquiry into the facts was instituted, at the request of the Treasury Department, by the Department of State, and also by collectors of customs. This inquiry developed the fact that in Canadian ports British vessels and vessels of those countries which admit British vessels into their coasting trade were required to take out annual license at a cost of 50 cents, permitting them to enter and clear at Canadian ports above Montreal. From the annual report of the Commissioner of Navigation it is learned that American vessels, under the provisions of Section 112 of Chapter 32, Revised Statutes of Canada, passed in 1886, were required to pay 50 cents for each entry and each clearance of a vessel of less than 50 tons and $1.00 for vessels above 50 tons. Under this law evidently Canadian vessels plying between American and Canadian ports had been required to pay smaller charges in Canadian ports than American vessels engaged in the same trade. Under the laws of the United States the charges imposed on both American and Canadian vessels have been equal. The understanding of the Government of the United States in the matter of the uniform treatment of foreign and domestic vessels, is that charges on foreign vessels in the ports of the United States should be no higher than those imposed on vessels of the United States in the ports of this country, and that the charges imposed on American vessels in foreign ports should be no higher than the charges imposed on the vessels native to those ports. This is the practice of the United States Government, and it is in accord with nearly all of its treaties of commerce and navigation with foreign powers. The matter has been the subject of a long correspondence between the Department of State and the British Embassy, and as a result, in April, 1896, the Governor-General of Canada, by an order in council, abolished the charges of which complaint was made by this Government. Neither the American nor the Canadian statistics concerning the entry and clearance of vessels permit a precise statement of the money saved to lake commerce in conseqeunce of the removal of this Canadian discrimination, which has been maintained for at least ten years. During the fiscal year ended June 30, 1895, the latest figures available, the American vessels entered from and clearing to Canadian lake and river ports numbered 21,475. There are no statistics available to indicate how many of these vessels were less than 50 tons burden, paying 50 cents for each entry and each clearance at Canadian ports, above Montreal, and how many were of the larger size, paying the $1.00 rate. The saving, however, will be presumably in the neighborhood of $15,000 annually, or more than half the cost of the annual maintenance of the bureau of which the Commissioner of Navigation is chief.

U. S. REVENUE MARINE SERVICE.

An active patrol of the coast line, rivers and harbors of the United States, especially on the sea, Gulf and Great Lakes, has been maintained, and in the performance of this work the vessels of the service have cruised an aggregate of 307,133 nautical miles; boarded and examined 20,250 vessels of the merchant marine, of which number 645 were reported to the proper authorities for violation of the United States customs and navigation laws, incurring penalties in the sum of $210,994. During the year 67 vessels with 694 persons on board, in actual distress, were assisted, the value of the vessels and their cargoes amounting to $1,011,807. The pecuniary value of the services thus rendered to the government and to commerce represents a sum equal to $1,222,801, which is $287,801 in excess of the annual appropriation for the maintenance of the service. In aid of the life-saving establishment, vessels have cruised 6,681 miles. The lives of 78 persons were saved, 60 of whom were actually taken from the water and rescued from drowning. The lives of twelve others were saved from vessels capsized in a hurricane near Savanna, Ga., while five others were rescued after their escape from a wreck, where they were found in a destitute condition.

TONNAGE TAX.

The tonnage tax reported for the year amounted to $544,254.97, compared with $523,344.61 for the previous fiscal year. Of this amount, $359,394.11 was paid by British vessels, $66,868.61 by American vessels, and $29,597.11 by Norwegian vessels. Steam vessels paid $378,925.22 and sailing vessels $163,194.34. The penal tonnage taxes amounted to $2,135.41.

FREE RAW MATERIALS.

The maritime nations of the world admit shipbuilding materials free of duty. By various tariff acts from June 6, 1872, to August 28, 1894, the United States has taken several progressive steps in the same direction. If our merchant marine is to compete with that of other nations, it must receive the same privileges which foreign nations freely extend to their shipping. A bill to accomplish this purpose (S. 184 and H. R. 2668) was introduced at the last session of Congress and is now awaiting consideration by the Senate Committee on Commerce and the House Committee on the Merchant Marine and Fisheries.

SOUTHERN HARBORS.

The reports of the officers of the Corps of Engineers of the Army in charge of river and harbor improvements show that many millions of dollars have been expended to improve the entrances of harbors.

These reports show that up to June 30th, 1896, the following sums, aggregating over $27,000,000, were expended by the General Government at seventeen principal seaports:

Norfolk Harbor and approaches, Virginia..	$ 884,308.83
Neuse River, N. Car. to and above Newbern.	285,029.29
Beaufort Harbor, North Carolina.....	152,845.32
Cape Fear River at and below Wilmington, North Carolina.....	2,956,977.64
Charleston Harbor, South Carolina.....	3,906,977.64
Beaufort River (Harbor) South Carolina..	25,294.20
Savannah Harbor, Georgia.....	5,334,611.58
Brunswick Harbor, Georgia.....	200,000.00
Cumberland Sd., Ga. (Fernandina Harbor).	932,500.00
Key West Harbor.....	244,234.09
Tampa Bay, Florida.....	130,000.00
Apalachicola Bay, Florida.....	107,329.55
Pensacola Harbor, Florida.....	395,087.57
Mobile Harbor.....	3,372,183.47
New Orleans Harbor.....	717,705.35
Galveston Harbor, Texas.....	6,910,006.42
Arkansas Pass and Bay (to Corpus Christi) Texas.....	540,477.65
Total.....	$27,095,460.74

This enormous amount does not include the expenditures by the Light-House Board for light-houses, buoys, beacons, ranges, etc., nor the expenses of the Coast and Geodetic Survey in the preparation of accurate charts of coasts and harbors. It does not include expenditures for the minor seaports of the states under consideration. It does not include the appropriations made at the last session of Congress. The sum of $35,000,000 is not an overestimate of the contributions which the people of the United States have already made for the direct benefit of the commerce of nine states.

EASTERN FREIGHT MARKET.

According to the weekly freight report of Messrs. Funch, Edye & Co., which includes ports from New York to Baltimore, they state that the list of charters for grain shows up fairly well, and we are pleased besides to be able to report an improved inquiry for berth room after the turn of the year. There is little demand for steamers to carry case oil eastward, but some boats for January loading are wanted at the Atlantic cotton ports, where shippers, however, express themselves as unable to pay the figures presently asked by owners. Early boats are not at the moment offering at all freely, but presumably shippers will find more ready tonnage after the holiday season.

We have no change to report in the attitude of our market for sail vessels. A few charters for case oil are found and we point to fixture of vessels with full cargo of crude petroleum for Rio de Janeiro as the first shipment of oil in that condition to the Brazils. For Europe not a single charter for barrel oil has been effected since our last week's report. Little has been done in charters for lumber and timber, inquiry being very light. Some demand is shown for further tonnage for naval stores, but only at slightly lower rates. Far-off vessels treating for general cargo equally find the tendency of freights to be for a decline, whilst spot and near-by tonnage remains in good request and able to command full rates.

THE JAPANESE PACIFIC TRADE.

Japan has now a larger carrying trade on the Pacific than the United States. This is the statement of the United states Counsul Bell at Sidney, contained in a report to the State Department upon the opening of the new Japanese steamship line between Yokahama and Australia. He describes the pioneer ship of the new line as she appeared in Sidney harbor and makes some interesting statements as to the splendid developemnt of the Japanese people. It would appear as if Americans had concluded that it is better to let other nations do the carrying trade of the world, including our own.

The Pacific trade will at some date in the future, equal, if not surpasn, the carrying trade of the Atlantic and it seems a pity that healty Americans can not get together and form a strong ship-owning company to build a fleet of modern passenger and cargo steamers for service in the Pacific.

BRITISH SHIPBUILDING RETURNS.

British shipyards launched 1,326,822 tons during the year 1896—257 sailing vessels of 66,142 tons, and 696 steamers of 1,260,680 tons—as compared with a total of 1,156,571 last year. The total in all the improtant districts are increased, and prospects are bright for more new work. Messrs Harland & Wolff easily take first place on the record both in tonnage and horse-power. The Tyne returns are not to hand, but the estimate is probably near the mark. The foreign returns are more complete than they have ever been, and, though it is impossible to make comparisons on former years, it is safe to assume that the industry is brisker in the United States and Germany.

ORGANIZING AT DETROIT.

The grand secretary of the American Association of Masters and Pilots of Steam Vessels is at Detroit this week to establish a sub-harbor of the association at that port.

Harbors have recently been organized at Duluth, Bay City and Port Huron and there are already 46 harbors in the United States, eight of which are on the lakes and if the Detroit officers are initiated it will bring the total number of lodges up to 47 and Detroit will be eligible to elect a representave to attend the grand harbor at Washington to be held on Jan. 25.

NEWS AROUND THE LAKES.

CHICAGO.

Special Correspondence to the Marine Record.

The steamer P. D. Armour was chartered Tuesday for a cargo of oats to hold.

The tug Tacoma is in the Independent Tug Line's floating dry dock for repairs to her stern bearing.

The steamer Edwin S. Tice arrived here on the morning of the 24th of December with salt from Ludington.

At Miller Brothers' shipyard the steamer J. P. Ketchum was in dock for general repairs and some re-calking and re-ironing.

James A. Calbick & Co. chartered the steamer James H. Prentice for wheat for winter storage and spring delivery at Buffalo at 3 cents.

Captain C. E. Little, recently master of the steamer C. H. Green, has been appointed master of the steamer J. C. Ford, which will run between Kewaunee and Frankfort during the winter.

The tug Crawford caught fire Saturday morning, and was damaged to the extent of about $400. The bursting of a steam pipe helped to extinguish the fire, which would otherwise have been more serious.

The steamer City of Kalamazoo, of the Williams Line, running between South Haven and Chicago, which was recently badly burnt, will be repaired and put in first-class condition at South Haven during the winter.

The Graham & Morton Transportation Co. will give the fine side wheel steel steamer City of Milwaukee, recently purchased by them, a thorough overhauling and an elegant fit out for her next season's excursion business.

J. J. Rardon & Co. chartered the steamer Egyptian for 100,000 bushels clipped oats at 2 cents, the steamer City of Cleveland for 75,000 bushels wheat at 2 3 4 cents; both to hold for winter storage and spring delivery at Buffalo.

E. T. Hitchcock, prominent in insurance circles—as an adjuster of marine losses and for many years past located at Buffalo, N. Y., has opened an office on the fourth floor of the Royal Insurance building, Chicago, where he proposes to make his permanent headquarters.

Captain S. R. Chamberlain returned home from Milwaukee last week, where he had placed the steamer Escanaba in winter quarters, prior to which she received at the Milwaukee Dry-Dock Co.'s shipyard a $10,000 repair bill, comprising new planking, all around above the load line, a general overhauling, new pole spars and a new Sheriffs' wheel. She now looks like a new Escanaba.

The Marine Engineers Beneficial Association, Lodge 4, Chicago, will hold a meeting for the election of officers for 1897 on Friday evening, January 8th, at their hall, corner of Randolph and Clinton streets. Chicago. They have made arrangements to have their 22nd annual ball on Wednesday evening, February 10th, at the Masonic Temple. They hope all their old friends and very many new ones will rally around and assist in making the event a great success.

Harvey C. Beeson has just returned from a week's trip covering ports on the west shore of Lake Michigan, including Milwaukee, Sheboygan and Manitowoc. At the latter point Mr. Beeson reports Burger& Burger's shipyard full of work with plenty of it ahead. Manitowoc is and has been for the past year a very lively town, the building of immense storehouses and a grain elevator there, together with large dock extensions for the accommodation of coal traffic and harbor improvements accounts for these improved conditions.

The Dunham Towing Company awarded to Captain James McGinn of the tug Mosher $100, the first prize as the best captain during last season, and $50, the second prize, to Captain E. B. Bowen, of the tug James McGordon. To John Carrick, engineer of the tug O. B. Green, $75, the first prize for the best engineer, and $40, the second prize, to Jerry Hubbard, engineer of the tug Robert Tarrant. The decision as to the captains' awards was based upon discipline, the care taken of the boat, the lack of damage done and the willingness shown in the way the work had been done in general. The decision as to the awards to the engineers was based upon the discipline had in their department, the care taken of boiler and engine, and conduct in general during the season.

Captain Peter Peterson of the schooner Winnie Wing accompanied by his wife, and Captain John Peil, of the schooner Apprentice Boy, who left Chicago for New York recently on a trip to Europe, arrived at Bremen, Germany, on the North German Lloyds steamship Spree on Christmas Day, all safe and well after a very rough passage across the ocean. Captain Peterson and wife have gone to pay a visit to their old home at Frederica, Denmark, which the captain left in 1860, and Captain Peil has gone to the City of Leer in Hanover, the place of his birth, and which he left 35 years ago, and where his sisters are now living. After visiting at their homes they will meet and make a tour in Denmark, Germany, France and England; from the latter country they will embark for America and hope to get home to Chicago in the spring.

At a largely attended meeting of Chicago Lodge No. 3, of the Shipmasters' Association, held at their hall on Wednesday afternoon, Dec. 30th, the following officers were elected for the year 1897: Captain H. F. Loftus, re-elected president; C. H. Hubbard, re-elected first vice-president; L. .B. Coates, second vice-president; Fred Weimar, marshall; Wm. Shaw, chaplain; J. O. Wood, warden; Geo. Cotterell, sentinel; Geo. Turner, treasurer; F. B. Higgie, secretary; J. H. Gallagher, delegate to the Grand Lodge and to Washington with the president, Captain H. F. Loftus.

A happy and prosperous New Year to all.—Williams.

PORT HURON, MICHIGAN.

Special Correspondence Marine Record.

The steam barge A. Sumner is having a new engine, 18x20 put in her and a general overhauling.

It is reported that Captain Lew Cary, who has taken up his residence in Detroit, is very sick at his home.

The machine shops are very busy now on repair work, though there is not much new work on hand at present.

Mr. Robert Logan, naval architect and surveyor, left for Bay City on Monday, expecting to return on Thursday.

The marine engineers are coming home daily. Engineers' hall in the Boice block will be opened next week.

There is very little work being done in the ship yards now, but after the holidays are over they will all start on what jobs they have on hand.

The Wilson Transit Line steamer Wallula, about which there was such an argument relative to her being an actual or constructive loss, is now being rebuilt at the Ship Owners' Dry Dock. The steamer Wm. Edwards, Capt. John M. Johnston, is also at the Ship Owners' yards undergoing repairs.

The Pennsylvania Railroad Company's slip on the lake front, near the Union depot, will be dredged to nineteen feet and probably lengthened. It is now 600 feet long and the Cuddy-Mullen Coal Co., operating a fast loading coal plant, would no doubt find their work facilitated if the slip was made larger.

Capt. Thomas Cosgrove, the Canadian who was indicted for spiriting the schooner Aurora away from the custody of the United States marshal last summer, was held to trial in bonds of $1,500 by Judge Swan in the United States District Court at Detroit on Monday.

The harbor of masters and pilots organized at this port last January is again in working order, or at least the national organizer, Captain B. F. Perkins, hopes soon to have it so. At a meeting held on Monday evening the captain, whose work has been on the coast, was heard in behalf of the new organization, which certainly has some very decided advantages. From his talk it appears that the new association is pushing vigorously many needed measures before Congress for the benefit of marine men, as well as the public. The careful education and examination of mates and pilots and a more careful protection of their legal interests, on the one hand, and the extension of government supervision to all the marine interests of the country, on the other, were the good points which he made. The new association has also a carefully managed mutual insurance with only a light assessment. Wilbur Boynton, from the Engineers' Association, spoke in favor of the new organization and a general discussion followed.

CLEVELAND.

Special Correspondence to the Marine Record.

Capt. M. Barry, of the Independent Tug Line, Chicago, visited this port on Tuesday.

The steam tug Josie was libeled by the United States authorities yesterday on application of the River Machine and Boiler Company on a claim of $168.92.

Mr. E. P. Motley, formerly of the Thunder Bay Island Life Saving Station and last season at Middle Island Station, is in port visiting his brother, Captain C. E. Motley, keeper of the station at this port.

One of the most experienced Georgian Bay pilots now hailing from this port is Captain Ben Tripp,who was engaged to pilot the large steamer Spokane to Midland and return during her last trips. The captain was in the Georgian Bay and north shore of Lake Superior trade before the completion of the late surveys and when great care was necessary in the safe navigation of steamers.

Captain John Corrigan, owner of the large, staunch, wooden built steamer Aurora, enjoys the distinction of carrying the last cargo of the season, Chicago to Buffalo; more than this, Captain John ferried along in the steamer himself, thus standing the brunt of the coldest weather on the lakes. There was no "fall fever" evident in this experience of the owner of the Aurora and she is at it yet.

Captain William Logie, who has been identified with the marine interests of this port for a number of years, died of apoplexy on Sunday morning, at the age of sixty-seven years. He was born on the Orkney Islands in 1829, and came to Cleveland about thirty years ago. For some years he was a master of sailing vessels, and in 1870 became identified with the Vessel Owners' Tug Line. For a number of years he had charge of the tugs at night.

There is some talk of a new tug line starting in next season at Ashtabula. The Beacon says: "Nothing definite has yet been announced, but it is certain that there is strong probabilities of Capt. Davidson's new fleet of tugs being sent here and placed in charge of a competent manager, a resident of this place, and one that has had experience. Two tugs belonging to this line are already completed and it is said two more will be built this winter and completed by the opening of navigation."

Officers of the Lake Carriers' Association had a meeting with Congressman Burton here on Monday when the required extra aids to navigation were talked over. It appears that several more gas buoys will be asked for. They are inexpensive at first cost and their keep up is only about $100 for a season. These lights burn continuously for any period, according to the capacity or size of the buoy containing the compressed gas, the usual sizes burning from ninety to one hundred and eighty days.

Marine engineers can obtain one of the handsomest calendars of the Ney Year, free of charge, by addressing The Roberts Safety Water Tube Boiler Co., 41 Cortlandt St., New York City, and giving their full name and addresses with the name of the last vessel on which they were employed. These calendars are a perfect picture and even superior to those issued by The Roberts Co. last year. They are sent in a mailing tube. Six cents in postage can be remitted if desired but is not insisted upon.

A meeting of the harbor of the American Association of Masters and Pilots of Steam Vessels was held on Tuesday night and officers were nominated. Next Tuesday night they will be elected. Capt. B. F. Perkins, grand secretary of the association, will be here. Capt. Perkins has visited nearly all the upper lake ports organizing harbors. The grand harbor will meet in Washington Jan. 25 and delegates are expected from all the subordinate lodges in the country. The harbors on the lakes have prospered since last April and have increased in membership 50 per cent.

The heaviest fog of the year, and in fact for several years past, held this port in a close embrace up to noon Thursday. It is fairly a London smoke and traffic is considerably impeded. If the fog extends over the lake it will give the Aurora a hard time to get into Buffalo and in any case she will have to feel her way very carefully to keep off the bottom. Had the weather been clear she could probably have made another Toledo trip; then again, if it had froze down hard she would have stood a poor chance of making port after leaving Toledo. In any case, December 31 is about late enough, considering that she is the only cargo boat now out.

A large number of friends and people in humble circumstasces will be sorry to learn of the illness of Chaplain J. D. Jones, of the Floating Bethel. His rather critical condition was brought on by incessant work, and as Captain Thomas Wilson remarked a few days ago, Rev. Mr. Jones "permits his heart to run away with him." During the business depression in 1893 he was investigating cases and rendering aid to destitute families almost constantly. Often he would not reach his home until after midnight. This fall he has been working very hard, too hard for his health. As a result of the chaplain's poor health the hundreds of well-filled Christmas baskets and warm clothing collected and distributed each year at the Floating Bethel was not observed as usual. The chaplain says he will pull through all right after a while.

IRON ORE SHIPPING PORTS.

In its large and finely illustrated industrial issue the Detroit Free Press of Dec. 30 has furnished a truly metropolitan daily and a paper that its publishers and staff may well feel proud of. Relating more distinctly to marine interests we find the following:

Residents of Michigan may themselves be surprised to know that the Lake Superior region supplies more than 55 per cent. of all the ore mined in the United States. Yet such is the fact. It is no exaggeration to say that no other part of the world possesses so many advantages for handling and transporting vast quantities of ore. From the mines to the furnaces is practically an all-water route. This fact alone makes this region valuable beyond computation, for with all-rail transportation the produce of the mines could not be moved to the far distant furnaces.

Beginning in 1852, when the first iron ore was shipped from Marquette up to the close of 1892, a total of 18,644,203 tons was shipped from the docks of this port alone. Until 1879 Marquette held the lead in quantity of ore handled, but in that year Escanaba took the first place. This port now has four docks equipped with all the modern improvements, ranging from 42 to 47 feet above water, with a total capacity of 82,000 tons per day.

L'Anse became a shipping port in 1873. Its dock is 38 feet high with a capacity of 8,000 tons. St. Ignace has been a shipping port since 1882, and has handled 610,315 tons of ore. Escanaba has maintained the lead she won in 1879 and her aggregate tonnage of iron ore in 1891 and 1892 led the world. Shipments began in 1865 by putting the Marquette range under tribute; in 1877 the new Menominee range began to empty her treasures into the lap of the coming iron port of the world; in 1892 her shipments were 4,012,197 tons, nearly half the entire ore shipment of the whole Lake Superior region, and the stupendous total of 33,875,454 tons of iron ore has passed through her gates en route to lower lake receiving ports.

At Ashland the Wisconsin Central railroad has one dock 46 feet high, 1,404 feet long, with 234 pockets, 3 tracks and a capacity of 28,250 tons.

Gladstone, Mich., shares with Escanaba the care of the Menominee range product, and an occasional cargo of Gogebic and Marquette ore goes out of that port. Shipments began in 1889, and attained an aggregate of 458,711 tons at the end of 1892."

FLOTSAM, JETSAM AND LAGAN.

The Goodrich liner Indiana is wintering at Chicago.

The Clyde Iron Works, Duluth, has libeled the Inman tug Buffalo for repairs for $122.06.

B. B. Inman of Duluth has made an assignment to A. R. Macfarlane for the benefit of his creditors.

The car ferry steamer Pore Marquette was launched at Bay City on Wednesday and is booked to go on her route Saturday.

The steamer City of Genoa left Toledo December 27 for Buffalo with a cargo of corn and the steamer Aurora on the 29th also bound to Buffalo.

There is a fleet of fifty-one vessels in winter quarters at Tonawanda, fifteen of which are steamers, thirty-five barges and one schooner.

The following vessels are in winter quarters at Lorain: Steamers Vega, Vulcan and Robert Wallace, schooners David Wallace, Three Brothers, Kate Winslow, Selkirk and General Franz Sigel.

A steamer to cost $80,000 will be built by the Galvin company at Garden Island, Ont. The boat will be a modern steamer, 215 ft. over all, and will be owned by the company. She will be employed in the lumber and grain trade.

Capt. John Johnston died at Clayton, N. Y. this week, aged eighty years. Deceased established the first regular line of steamers upon the St. Lawrence river between Cape Vincent and Clayton for the benefit of tourists travel to the Thousand Islands, before the days of railroad communication with Clayton.

The steamer E. C. Pope is in drydock at Chicago and it will cost about $7,000 to repair her. She struck in St. Mary's river last fall, but as no leak develoned her damage was supposed to be light. To the surprise of everyone, upon being docked it was found that eighteen bottom plates required rerolling, and some to be renewed.

Capt. John V. Tuttle has accepted a lucrative position with the British & Foreign and North American syndicate of underwriters and will give up his residence in Milwaukee about the 1st of May next. Capt. Tuttle is at present in Buffalo in the interest of the syndicate, but is said to be undecided whether to locate there or at Oswego.

Manitowoc's winter fleet consists of 32 steam and sail crafts as follows: Steamers, Virginia, Chicago, Sheboygan, City of Green Bay, Liberty, Francis Hinton, T. S. Christie, Noormandie, Simon J. Murphy, George D. Nau (tug). Schooners, Nellie Church, F. Miner, Glen Cuyler, Lizzie Metzner, James H. Hall, Charley J. Smith, Isolda Bock, Emma L. Neilson, Linerla, Lydia, Burt Barnes, Oscar Newhouse, Naiad, Active, L. B. Coates, Little Georgy, Jessie Martin, Merchant, Libbie Carter, Agnes, Actor and Felicitous.

At Chicago vessels are in fair demand for grain cargoes to be held on board and delivered in the spring. The rates paid are three cents on wheat, 2 3-4 cents on corn and 2 1-2 cents on barley to Buffalo. Charters reported include the steamer Madagascar and her consorts, S. M. Stephenson and Fanny Neil, for about 130,000 bushels of barley, and the schooner Emma C. Hutchinson for 50,000 bushels of wheat. Carriers manifest no particular desire to accept corn cargoes, as the cereal is not in proper condition to keep well.

Buffalo marine underwriters do not change their views in regard to the propriety of sailing on lake Erie after December. They point to the Conneaut car ferry, built for winter sailing, and yet was lost in the ice for several weeks last winter. At the same time there has been nothing to hinder vessels from sailing on lake Erie the last few days, and there is no ice save for the little that has formed in the inner harbor and along the north and south shores. Manager Newman of the C. & B. Line is quoted as saying that he thought it would not be long untill many of the lake boats would be kept running until Jan. 1. During the past two weeks, he said, we have had better sailing weather than we had in November, and there is no reason why good, staunch boats are not kept in commission as long as business is offered.

NEW YORK STATE CANALS.

Supt. Aldridge's report of the operations of the canal system of the state of New York shows that boatmen have had a comparatively prosperous business during the past season. Supt. Aldridge says that the average price received by the boatmen for transportation of wheat between Buffalo and New York has been about 3¾ cents per bushel. This is the highest average since 1890, except in the year of 1893. The total number of tons of freight carried upon the canals during the season of 1896 was 3,714,894, of which the Erie canal carried 2,742,438, the Champlain 802,510, the Oswego 57,245, the Black River 57,953, the Cayuga and Seneca 54,739. Of the total tonnage, 852,467 tons were products of the forest, 1,126,665 of agriculture, 152,322 of manufactures, 270,603 of merchandise, and of other articles not classified there were 1,032,837 tons carried.

GRAIN IN STORE AT CHICAGO.

Stocks of grain in public elevators at Chicago are: Wheat, 13,349,000 bushels; corn, 5,568,000 bushels; oats, 4,756,000 bushels; rye, 1,077,000 bushels; barley, 94,000 bushels. Stocks afloat are, 50,000 bushels wheat, 132,000 bushels corn, 32,000 bushels oats. Private elevator stocks of wheat decreased 44,000 bushels, and oats 165,000 bushels but corn increased 138,000 bushels. The stocks are: Wheat, 2,161,000 bushels; corn, 1,641,000 bushels; oats, 2,251,000 bushels. The aggregate stocks of wheat in public and private elevators and afloat is 16,012,000 bushels.

LAUNCH OF THE PERE MARQUETTE.

The car ferry Pere Marquette, built at the yards of F. W. Wheeler & Co., West Bay City, for the Flint & Pere Marquette railroad, was successfully launched on Wednesday. The new craft is believed to be the largest and strongest car ferry afloat and is intended to ply across Lake Michigan the year around. She is 350 feet long, 56 feet beam and will carry thirty loaded cars. The ferry will leave for Ludington Saturday and go into commission between that port and Manitowoc, Wis., at once. The route thus opened up will be the shortest rail line between the northwest and the Atlantic seaboard.

AN INDUSTRIAL EDIUION.

A special industrial edition of the Detroit Free Press was issued on Dec. 30, and THE RECORD numbering among the Michigan and especially Detroit industries many of its patrons is pleased to reproduce a portion at least of some of the good words spoken in behalf of some of the prominent firms of the "City of the Straits."

DETROIT DRY-DOCK COMPANY.

The advantages of large, well-equipped drydocks to a city located as Detroit, on the most navigable river in the world, are incalculable. The dry-docks of the Detroit Dry-Dock Company are so extensive in size and so thoroughly equipped for the building and repair of vessels of every class that hundreds of thousands of dollars are here spent in wages and material that, were it not for these docks, would go to more favored localities.

The first important vessel built by this company was a composite steamer for the Detroit & Cleveland Navigation Co.'s passenger line; this, with others in the same class, has reflected great credit on the drydock people, who are the only successful builders of composite vessels on the lakes.

The S. R. Kirby, built by this company, is a steamer, the dimensions of which are worth noting as going to show the capacity of the docks and yards of this company. This vessel is 311.6 feet in length, and has a 42-foot beam, a depth of 23 feet, a gross tonnage of 2,338.66 and a net tonnage of 1828 tons. The Norden, also built by the Drydock Company, a passenger and freight steamer, has a length of 209.10 feet, is 35.10 beam, a depth of 15.15 feet, a gross tonnage of 1,122.92, and a net tonnage of 798.15, and carries two triple expansion engines 20x33 and 42x54 inches, with two cylindrical boilers 11x12 feet 6 inches.

The steel ship building plant of this company at Wyandotte is one of the most complete in the world. Here, with other vessels of like rating, was built the Storm King, whose length is 268 feet, beam 38.4 feet, a gross tonnage of 1,702.96 tons, a net of 1,223.94 tons and a depth of 22 feet.

Organized in 1892, with a capital of $300,000, the business of the Detroit Dry-dock Company has been successfully conducted by Hugh J. McMillan, as president; Alexander McVittie, vice-president and manager; Frank Kirby, engineer, and Gilbert H. McMillan, treasurer.

FRONTIER IRON WORKS.

One of the most important, progressive, prosperous and industrial corporations in Michigan is the Frontier Iron Works, of Detroit. These works are located at the corner of Atwater and Chene streets, and the business is conducted under the management of a board of officers, of which Wm. V. Moore is president, H. W. Rood, vice-president, and Thos. S. Christy, treasurer and general manager, who as an expert engineer, founder and machinist, has made these works noted for the reliable and meritorious character of their engines and machinery.

While the Frontier Iron Works make Weber's Gate Valves, Lubricators, Lawn Fountains and Frontier Feed Water Heater and Purifier, as specialties, it is the perfection and economy found in their build of triple expansion engines that has carried the fame of their works into every port of the world, to which large steam vessels are admitted.

Among the many large lake and ocean steamers that ply the salted and unsalted seas of the world, propelled by the Triple Expansion Engines, built at the Frontier Iron Works, may be named the lake steamers T. W. Palmer, Livingstone, Majestic, Uganda, Nyanza, Fedora, Geo. F. Williams, W. H. Gilbert, John Harper, John Mitchell, Tampa, Iosco, C. F. Beilman, F. & P. M. No. 5, W. F. Sauber, Merida, Capt. Jas. Davidson's boats, Nos. 60, 61, 64 and 77, Rappahannock, Shenandoah, Madagascar, Appomatox, Nicaragua and Sacramento. The ocean steamers, Mackinaw and Keweenaw; whaleback steamers, Samuel Mather, Pathfinder and Everett. Quadruple expansion for McElroy's new boat, Unique

SUPERIOR GRAPHITE PLANT.

It may not be generally known that when a diamond—the hardest of all known substances—is consumed by the flames of the blow-pipe, the ashes resulting is graphit, precisely the same as that found in the mines discovered some years ago on the upper peninsula of Michigan.

This graphite is the most indestructible of all pigments when made into paint; is not affected by heat, cold, salt, air, or chemicals.

Careful experiments conducted in the laboratory of the Detroit Graphite Manufacturing Company have produced results which were given in a paper entitled "Rustless Coatings for Iron and Steel," by Prof. M. P. Wood, read at the Detroit meetings of the American Society of Mechanical Engineers, held in June, 1895, and which paper froms part of volume XVI. of the transactions of that meeting.

"The resistance of these brands of paint to the corrosive action o facids or alkalis is very remarkable, as the following severe tests will show:

"Pieces of iron painted with them have been dipped in muriatic acid, sulphuric and oxalic acids and then allowed to dry with the acids upon them for nineteen days without showing a trace of any damage to the paint.

"These paints have been immersed in ammonia and salsoda for nineteen days, in coal oil for several weeks; and in strong brine for six years without showing any injury. Pieces of iron have been coated with Lake Superior graphite and submitted to twenty-four tests in alcohol, boiling beer, boiling brine, boiling sugar and water, without the paint showing any injury.

"Smokestacks painted with graphite paint have been heated to redness without blistering. Sheet tin, coated with these paints can be twisted and bent in all directions without scaling or cracking the paint." These exhaustive tests referred to by Prof. Wood led to the adoption of Superior Graphite Paint on the steel decks of the Michigan Central R. R. transfer boats, as a protection against the salt brine from refrigerator cars.

Graphite pigment when pulverized to an impalpable powder is very light in comparison with other pigments, has very great covering powers when made into paint, forming an entirely air-tight covering to the metal, and is an absolutely rustless coating for iron or steel when properly applied.

The Superior Graphite Paints of the Detroit Graphite Manufacturing Company, are conceded to be the best product of the kind produced, and are fast crowding out of the market inferior goods.

The plant and other offices of the company are located at 542 River street. It was incorporated in 1891 and is officered by Ralzemond A. Parker, president; Jas. T. Sterling, vice-president; Wilbur F. Monroe, secretary; Alexander A. Boutell, treasurer and manager.

The steamer Periwinkle sold at United States marshal sale last week in Toledo, has quit a history connected with her. She was built at Buffalo in 1864 for the United States revenue marine service, and bore the name of Commodore Perry. She has a gross tonnage of 412, and a net tonnage of 267 tons. Captain Hodgen, of the Fessenden, was the first captain of the Commodore Perry, and later went to the boat he now commands. When the Periwinkle was in the revenue service the fleet was composed of the Fessenden, Perry, Andrew Jackson, Commodore Perry, and the Michigan.

WATER TUBE BOILERS--LIQUID FUEL.

The year book of the Office of Naval Intelligence just issued, contains some interesting observations on the results of experiments during the past year with water tube boilers for marine purposes. High authorities still differ widely regarding the relative merits of Scotch and water tube boilers, and on the efficiency of the various types of the latter. Mr. Durston, Engineer-in-Chief, of the British Navy, is of the opinion that water tube boilers may well be employed in the navy in many cases. He thinks water tube boilers have the general advantage of lightness, of great importance in certain types of war vessels, where the development of the highest possible form for short spurts is a requisite, and this power is required on the lowest possible weight of machinery. The usual power exerted on service of the naval ship is but a small proportion of the full power, and the British engineer thinks such small powers cannot be developed in a large engine with economy, and believes that the reduced size of the engine is more productive of economy at the low cruising powers which the vessel exerts during the greater part of her career.

A series of experiments recently made at Devonport, England, to determine the distribution of temperature over the tubes and tube plates of boilers showed that tubes remained tight up to a temperature of 750° F., but above this leakage must be expected, and that the loss of efficiency due even to a slight deposit of grease in the boiler was about 11 per cent. Brass and copper tubes were found to be more liable to leakage than steel and iron tubes, and, in consequence, brass and copper tubes, where used, are being replaced by steel tubes in the British service.

The adoption of Belleville water tube boilers for some of the larger ships of the British Navy meets the disapproval of eminent engineers, who believe that this boiler has not yet proved its superiority to the Scotch boiler as a steam generator for large vessels. Two important objections to water tube boilers which the British Admiralty appears to have overlooked are the greater coal consumption per indicated horse-power per hour as compared with cylindrical boilers, and the greater number of foremen and coal passers required for a given power. The new steamer Ohio, plying between New York and Hull, was equipped with 4 Belleville boilers, of 2,000 indicated horse-power, 6,000 square feet of heating surface and 192 square feet of grate area. The first voyage occupied 21 days at a speed under 7 knots, the coal consumption being 19 tons per day, and succeeding voyages showed equally unpromising results. Great trouble was experienced from leakage tubes, and the lack of economy has induced the company to order cylindrical boilers for a new steamer now under construction.

The adoption of Belleville boilers by the British Admiralty was severely criticised by Parliament last June, when it was urged that they were adopted without sufficient trial, and if they proved failures 23 vessels of the Navy would have to be supplied with new boilers. The Admiralty, nevertheless, held that the value of the boiler in getting up steam rapidly outweighed all other considerations. On this particular point, however, Mr. James Howden, the eminent English engineer, contends that the difficulty with water tube boilers in maintining steam for a period with the engines at rest is so great, owing to the small quantity of water they contain, their large grate surface and their small steam room, that it becomes necessary to remove fires, let down steam and have the fire bars recoaled and ready for lighting. It follows, therefore, that ships with water tube boilers lying at anchor are always found unprepared, while those with cylindrical boilers are ready to move at a few minutes' notice.

Col. N. Soliani, director of naval construction of the Italian Navy, is an advocate of the cylindrical boiler for all naval craft except torpedo boats. He recapitulates the advantages of cylindrical boilers as efficiency, simplicity of parts, firmness of bolted joints, durability, easiness of inside inspection, fitness to available space on board ships, small liability to derangement, possible concentration of large power in few boilers, so reducing the number and complication of pipes and fittings, steadiness of action, by which water feed and steam pressures are under easy control, facility of repair of the heating tubes under steam and adaptability for temporary use of sea water for supplementary feed.

Col. Soliani thinks that for swift vessels of small dimensions, designed for the use of torpedoes or special services, water tube boilers are a necessity; for certain classes of warships of large size water tube boilers are sometimes advantageous; for mercantile purposes and many classes of warships the water tube boilers are not suitable and the cylindrical boiler is preferable, and its continued employment is probable for a considerable time. Col. Soliani believes that there is a possibility of retaining the most valuable characteristics of the cylindrical type, while securing increased efficiency and fitness to meet the exigencies of modern steaming, by means of arrangements of water tubes.

In the use of liquid fuel, now constantly increasing in favor as a fuel for marine boilers, France is leading the world. All the vessels of the French Navy are to be fitted for burning this auxiliary fuel. The petroleum used is refuse oil of a yellowish color, comparatively odorless, and of the consistency of thin molasses. The fuel is injected into the furnaces in the form of spray, which increasese the intensity of the heat. This avoids the necessity of forced draft and the discomfort of the closed fireroom. The wear and tear on the boilers is less than that produced by forcing the draft. The experiment of the French shows that the ratio of petroleum to coil burned varies from 0.17 to 0.65, depending on the vessel, type of boiler, thickness of fire and degree of forcing required.

By the use of petroleum, the speed may be increased from 8 to 13 knots in from 7 to 15 minutes, without expenditure of coal. The larger vessels will carry from 60 to 80 tons of the liquid fuel. A type of boiler for the sole use of petroleum has been designed by M. Seigle, and is under construction by the French Navy Department. It is claimed for this boiler that complete and direct utilization of the heat is produced and rapid circulation of the water, and perfect combustion, the gases issuing from the smoke pipe being without trace of carbon monoxide. The single furnace is divided into a number of tubular telescopic furnaces, so as to increase the heating surface and consume the fuel regularly. The use of liquid fuel is increasing in Germany, and Italy is introducing it into all her torpedo boats.

ANOTHER NEW CONTRACT.

It is learned that W. Lewis A. Hall of Bay Mills, Mich, has entered into a contract with the firm of F. W. Wheeler & Co. W. Bay City for the construction of a composite built steamer to the order of the Niagara Falls Paper Co.

The general dimensions of the new steamer is to be 281 feet overall, 266 feet keel, 42 feet beam and 19 feet depth of hold, engines triple expansion and two boilers. This handy sized vessel will be built specially to carry pulp wood from Bay Mills to Niagara Falls and to load 1,000 cords on a draft of about 12 feet, and to steam 12 miles an hour.

COMMERCE OF THE "SOO" CANAL.

The following is an unofficial comparative statement as compiled by the Sault Ste Marie News, of the lake traffic passing that point during the years 1895 and 1896:

	1895.	1896.
Date of opening canal	Apr. 25	Apr. 21
Date of closing canal	Dec. 11.	Dec.8.
Number sailing vessels	4,790	4,391
Number steamers	12,495	13,404
Number unregistered craft	671	820
Total number passages	17,956	18,615
Registered tonnage	16,806,781	17,249,418
Number passengers	31,656	37,066
Coal, net tons	2,574,362	3,023,340
Flour, barrels	8,902,302	8,882,858
Wheat, bushels	46,218,250	63,256,463
Grain, other than wheat, bushels	8,328,694	27,448,071
Manufactured and pig iron, net tons	100,337	121,872
Salt, barrels	269,919	237,515
Copper, net tons	107,452	116,872
Iron ore, net tons	8,062,209	7,909,250
Lumber, B. M. feet	740,700,000	684,986,000
Silver ore and bullion, net tons	100	280
Building stone, net tons	23,876	17,731
Unclassified freight, net tons	463,308	520,851
Total freight, net tons	15,062,580	16,239,061

Marine engineers can obtain one of the handsomest calendars of the new year, free of charge, by addressing The Roberts Safety Water Tube Boiler Co., 41 Cortlandt St., New York City, and giving their full names and addresses, with the name of last vessel on which they were employed. These calendars are a perfect picture and even superior to those issued by The Roberts Co. last year. They are sent in a mailing tube. Six cents in postage can be remitted if desired, but is not insisted upon.

A NEW VESSEL REGISTER.

According to information received from Milwaukee, Capt. John V. Tuttle is at present engaged in inspecting vessels at Buffalo and will visit all of the lake ports where large carriers are laid up, for the purpose of ascertaining their condition. This work is being done in the interest of the British & Foreign and North American syndicate with the view of getting up a vessel register exclusively for private use, the important features of which will be covered by cipher and therefore accessible only to those possessed of an accompanying code. This radical departure from a custom which has prevailed for years cannot fail to attract attention and lead to a great deal of surmise as to the object of the syndicate in view. Heretofore the syndicate has paid attention almost exclusively to the cargo business, although in a few instances hull risks also have been carried. The preparation of a vessel register therefore possesses significance. It may forecast an intention hereafter to take risks on both hulls and cargoes, or it may be nothing more than a conservative move to confine the acceptance of cargo risks upon vessels of the highest grade. However, to most vesselmen it will appear as if the syndicate intends to enter the field for risks upon vessels of the better class at rates below those which may be adopted by the agencies comprising the Inland Lloyds.

It should be explained in this connection that the British & Foreign and North American does not do an underground business. The so-called underground companies are represented in New York by Johnson & Higgins, and in Philadelphia by Mather & Co. These firms are aided in their business at several lake ports by parties representing companies which are operating in conformity with the state taxation laws.

AN ANNUAL REUNION.

The employes of the Detroit and Cleveland Steam Navigation Company always hold an annual reunion after the close of navigation. The manager of the line, Mr. D. Carter, assembled over fifty of the principal employes on board of the City of Detroit for the twentieth annual dinner. As host, Mr. Carter sat at the head of the table; his remarks were as rief as they were cordial.

"It is with extreme gratitude and thankfulness," he said, "that I welcome you all once more, as co-employes, with unbroken ranks, around this beautiful table to commemorate the closing of another season's business of our company, the success of which has so largely devolved upon you, and by your loyal support and co-operation I can truthfully say: 'Well done, good and faithful servants.'"

"During the past season our steamers have navigated nearly 150,000 miles without serious accident; in fact, I may add that we have not lost a single life during the past twenty-nine years. I request you all to eat, drink and be merry."

The injunction was obeyed without delay and for nearly two hours the enticing menu which had been prepared by Chief Steward Louis Thorne and his staff of cooks was given a hearty reception.

When cigars had been lighted General Passenger Agent A. A. Schantz assumed the position of toastmaster and very few of the diners escaped his attention. Perhaps this part of the affair was the most enjoyable to some, as they listened to the experiences of the hardy mariners who were called upon to make responses. Between the talks there were songs by a quartette and several rousing choruses. Among those who responded were: Capt. A. J. McKay, D. C. McIntyre, T. F. Newman, Fletcher Sears, George W. Clark, Thomas Marriot, John Barlum, Thomas Barlum, D. E. Cummings, John Sughrow, Alfred Welfare, Meyer Phillips, Duncan McIntyre, Capt. M. Lightbody, Harry Warren, L. G. Lewis, William McDonald, John McArthur and C. C. Schantz. The following is a list of those present:

Capt. A. J. McKay, Capt. Archie McLachlan, Capt. M. Lightbody, Capt. A. J. Slyfield, John McCullum, Wm. Kenyon, Salem Robinson, Wm. McDonald, James Middleton, James Menzies, Geo. W. Clark, John Sughrow, D. E. Cummings, Richard Collins, D. McIntyre, Wm. Hough, J. Sargent, A. Phillips, A. L. McCorkindale, Wm. Reynolds, C. C. Schantz, G. P. A.; B. C. Wilder, cashier; Louis Thorn, chief steward; Fletcher sears, L. G. Lewis, R. G. Stoddard, Harry Warren, Martin Sinclair, Thos. Marriott, Meyer Phillips, Wm. Bullard, John McArthur, Wm. Shuter, Alex. Smith, Capt. D. A. McLachlan, T. F. Newman, G. M., C. & B. line, Cleveland, O.; G. A. Whitney, D. S. Carter, Jr., M. W. Sales, H. R. Leonard, James Crockett, Thos. Barlum, John Barlum, E. H. Moreton.

CORRESPONDENCE.

WHO IS TO BLAME.

Editor Marine Record:—

CHICAGO, December 29, 1896.

The lake captain mentioned in *The Record* who can rely on his compass "only with the aid of approximation of distance and guess work," is evidently not familar with the rudiments of navigation and the judicious use of the lead. Distances are not measured by the compass, but only angles are, and when distances are found to be wrong the compass is not to blame for it, for distances are always measured by the log. The floating or patent log commonly in use for measuring distances cannot be relied upon, because of unknown currents. Every navigator of experience knows that. It is the currents that vitiate all calculations as to the place the ship is in, even if the compass is correct, and so much more so if the compass is wrong. But to make allowance for currents has never entered the minds of men who hold the compass responsible for all miscalculations and miscarriages. Even Thompson, one of the foremost pilots of his age, says in his "Coast Pilot," 1878, page 95, that from Milwaukee to Grand Haven "most compasses will deviate on the return course from one-half to three-fourths of a point," attributing to the compass what is due to the current. The trouble with these men is, that they do not know how to find set and drift of current. Their limited knowledge of navigation is the cause of all their troubles.

As to his statement, that compass adjusters claim they can so fix the compass as to guard against local attraction, it would be well for him to show these fellows up by name, that they may become known to the lake community if they are jugglers.

His reference to the late Capt. A. W. Reid finding himself ashore on White rock in a fog on a short run from Port Huron, supposing to be two miles further out into the lake only shows that Reid had no business to hug the shore so close as two miles in a fog. White rock is fifty miles from Port Huron, and a difference of two miles in fifty equals an error of not quite one-fourth point in course. Had the vessel been kept in from 10 to 20 fathoms of water she would never have got stuck, showing that the lead was not used judiciously tto verify her position; for which neglect the compass is not to blame, even if it had been in error ten times the amount. For it is a fact a vessel will never get stranded on White rock in a fog if she only uses the lead and keeps to the 20 fathom curve, with or without a correct compass.

But our good fellow says: "That was what a false compass did for one man, and I could name a dozen such instances were it necessary."

His last remark is fully to the point; men of his calibre are met with but too frequently. Like him, they "hope the time will come when some inventive genius will come forward with an idea that will forever guard against local attraction or any other kind of attraction." In other words, these fellows won't go to the trouble of studying the rudiments of navigation and the judicious use of the lead—they want the compass to do it for them.

JOHN MAURICE.

FAST OCEAN STEAMING IN 1896.

For the Queenestown-New York record we go back to 1894, when the figures were:—

	—Sail—		—Steam—		Total	1895.
	Ves.	Tons.	Ves.	Tons.	Tons.	Tons.
Clyde	97	46,814	280	374,027	420,841	360,152
Forth	..	.....	22	8,650	8,650	16,757
Tay	..	.....	8	4,364	4,364	8,913
Dee	..	.....	19	5,069	5,069	4,738
Dockyard	..	.....	9	71,970	71,970	70,350
Wear	..	.....	84	218,350	218,350	138,641
Tees	6	3,978	57	109,429	113,407	116,480
Hartlepools ..	2	100	31	85,654	85,754	90,869
Humber	21	3,476	65	24,256	27,734	17,953
Mersey	1	40	14	19,266	19,306	6,972
Thames	64	1,330	35	15,271	16,601	6,110
Barrow	..	.....	7	14,654	14,654	25,644
Minor ports..	62	7,073	45	13,393	20,466	14,019
Belfast	4	3,329	20	116,327	119,656	102,096
Tyne	..	.....	..	190,000	190,000	174,319
	257	66,142	696	1,260,680	1,326,822	

Last year the table, which the Cunard Line furnished, for this record was:—

This year's official statement is as follows:—

In the case of the Liverpool boats the passage is taken as from and to Queenstown. On the Southampton route the record made in 1894 by the New York stood last year, so far as the American Line was concerned:—

This year the American-built boats have unmistakebly outpaced the comparatively old Clyde-built cracks, as the following tables, supplied by the American Line, show:—

Vessel.	Bound.	Date.	Time. D.	H.	M.	Distance.	Speed in knots.
Lucania	Out.	Oct....	5	7	23	2779	21.81
Campania	Out.	Aug...	5	9	29	2783	21.49
Campania	Home.	Aug...	5	10	47	2814	21.51
Lucania	Home.	Sept....	5	8	38	2810	21.84

Vessel.	Bound.	Date.	Time. D.	H.	M.	Distance.	Speed in knots.
Campania	Out.	Aug...	5	9	6	2784	21.57
Campania	Home.	Aug-Sep	5	10	0	2820	21.69
Campania	Home.	Oct-Nov	5	11	36	2812	21.36
Lucania	Out.	Oct-Nov	5	9	29	2781	21.47
Lucania	Home.	Sep....	5	9	53	2805	21.59
Lucania	Home.	Aug....	5	10	35	2801	21.45

CAMPANIA.

Outward.

Date leaving Liverpool.	1896.	Distance in knots.	Length of passage. D.	H.	M.	Knots per hour.
August	1	2785	5	9	35	21.49
August	29	2790	5	10	10	21.43
October	24	2813	5	12	44	21.19

Homeward.

Date leaving New York.	1896.	Distance in knots.	Length of passage. D.	H.	M.	Knots per hour.
August	15	2804	5	11	7	21.38
June	20	2898	5	12	32	21.36
November	7	2810	5	12	41	21.17

LUCANIA.

Outward.

Date leaving Liverpool.	1896.	Distance in knots.	Length of passage. D.	H.	M.	Knots per hour.
August	15	2783	5	8	45	21.61
July	18	2783	5	11	19	21.19
October	10	2783	5	11	42	21.13

Homeward.

Date leaving New York.	1896.	Distance in knots.	Length of passage. D.	H.	M.	Knots per hour.
August	29	2805	5	10	34	21.43
March	14	2890	5	12	35	21.79
April	11	2894	5	12	45	21.80

Vessel.	Bound.	Date.	Time. D.	H.	M.	Distance.	Speed in knots.
New York	Home.	Aug....	6	11	12	3074	19.8
New York	Out.	Sept.....	6	7	14	3047	20.15

WESTBOUND.

—Passage.—

Vessel.	Date.	Dys.	Hrs.	Min.	Distance.	Speed.
St Paul	August.....	6	0	31	3046	21.08
St Louis	August.....	6	2	26	3055	20.87
New York	Sept.-Oct...	6	9	51	3047	19.80
Paris	January....	6	10	29	3050	19.74

EASTBOUND.

St. Paul	October....	6	16	18	3076	19.19
St Louis	September..	6	12	27	3070	19.62
New York	March.....	6	16	9	3150	19.62
Paris	April.....	7	1	14	3152	18.62

BUFFALO TUG PILOTS' ELECTION.

At the regular election of the Harbor Tug Pilots' Association, held last Saturday night, the following officers were chosen: President, L. P. Cole; vice-president, Thomas Doyle; treasurer, S. M. Sloan, financial secretary, E. G. Gilbert, recording secretary, Joseph Green; trustee, Michael Carr.

COMMODORE OF THE ANN ARBOR FLEET.

Capt. William P. Robertson, who has been in charge of the Ann Arbor car ferry No. 2 the past two years, has been appointed shore captain for the Ann Arbor railroad boat line, now four in number. Capt. Stufflebeam of Manistee will be master of No. 2. The large increase of freight business across Lake Michigan is the reason for this change being made.

CALLED HENCE.

The late Captain August Foye died at his home in Put-in-Bay Island on Thursday last. Captain Foye was about 47 years of age and had been employed on lake vessels abouty 20 years, a large portion of which time he commanded steamers plying out of Sandusky. He was master of the old Lakeside steamer B. F. Ferris and took out the steamer A. Wherle, Jr., of which he was at the time a part owner. When the latter steamer was sold to the present owners, the Cedar Point Steamboat Company, Captain Foye was appointed mate on the steamer City of Sandusky, and succeeded to the same position when the new steamer Arrow was placed on the island route, resigning from that position last July on account of poor health. He was a careful seaman and was generally liked.

LICENSED OFFICERS.

American steam vessel officers are now generally aware that on May 28, 1896, an act of Congress was approved directing the issuance of licenses to steam vessel officers for a period of five years instead of one year. Beginning on the first of the year, therefore, licenses to steam vessel officers will now be issued for five years. There is really no reason why these licenses should not be issued for life. Still, it is far better to have them extend for five years than for only one. Besides the foregoing we call attention to two other clauses, as follows:

"And all the officers of vessels of the United States who have charge of a watch, including pilots, shall in all cases be citizens of the United States. The word 'officers' shall include the chief engineer and each assistant engineer in charge of a watch on vessels propelling wholly or in part by steam; and after the first day of January, 1897, no person shall be qualified to hold a license as a commander or watch officer of a merchant vessel of the United States who is not a native-born citizen, or whose naturalization as a citizen shall not have been fully completed."

"No master, mate, pilot, or engineer of steam vessels licensed under title fifty-two of the Revised Statutes shall be liable to draft in time of war, except for the performance of duties such as are required by his license; and, while performing such duties in the service of the United States, every such master, mate, pilot, or engineer shall be entitled to the highest rate of wages paid in the merchant marine of the United States for similar services; and, if killed or wounded while performing such duties under the United States, they, or their heirs, or their legal representatives, shall be entitled to all the privileges accorded to soldiers and sailors serving the the Army and Navy, under the pension laws of the United States."

THE JANUARY ADMIRALTY DOCKET AT DETROIT.

The following assignment of admiralty cases for hearing at the January term of the United States District Court, Detroit, has been arranged:

January 5—3915, Charles Frazer vs. schooner Emma C. Hutchinson.

January 6—4343, Hans Krause and Mark H. Hanlon vs. steamer F. & P. M. No. 2.

January 7—4350, the Western Assurance Co. vs. chnooner Hunter Savage; 4336, James Knaggs vs. tug Dan Runnels; 4391, Louisa B. Grummond, executrix, vs. barge Leland.

January 8—4479, Charles St. Louis vs. scow Magnet.

January 11—4561, James McBrier et al. vs. steamer J. H. Devereux; 4562, Gus H. Kruse vs. steamer Atlanitc.

January 12—4571, U. Grant Drummond vs. Wm. H. Chapau; 4572, U. Grant Drummond vs. the City of Detroit.

January 13—4578, Frederick R. Straight vs. schooner Sligo.

January 14—4580, John Bedard vs. barge John Breden; 4581, John E. Mills et al. vs. steamer Tower.

January 15—4582, Thomas S. Lester et al. vs. steamers Sweepstakes and Sumner.

January 16—4590, Thomas E. Belton vs. steamer City of Chatham.

January 18—4592, Louis Wheelock vs. schooner Lone Star; 4613, Charles Gilmore et al. vs. schooner Lone Star and cargo; 4614, Michael O'Rourke vs. barge Lone Star; 4616, Thomas Eccleston vs. schooner Lone Star.

January 19—4597, the United States vs. tug Martin Swain; 4608, the United States vs. tug Geo. E. Brockway; 4617, the St. Clair County Savings Bank vs. propeller Thos. D. Stimson.

January 20—4612, Michigan Boiler Works vs. tug James Adams; 4621, Frank Lapire vs. tug John Miner; 4624, the Lehigh Valley Transportation Co. vs. steamer William Chisholm.

January 21—4631, Ida Newberry vs. schooner Senator Blood; 4634, Wm. T. Roberts vs. schooner Egytian; 4618. Geo. Bryant vs. schooner O. J. Hale.

January 25—4635, Cutler & Savidge Lumber Co. vs. steamer Fedora.

January 26—4636, Edmund Hall vs. steamer Rufus P. Ranney; 4639, Charles A. Chamberlin vs. schooner Emily B. Maxwell.

January 27—4531, C. E. Chilson et al. vs. propeller Parks Foster and tug Kittie Haight; 4478, the Menominee Transit Co. vs. steamer Jack; 4480, petition of the Calvin Co., owner of propeller Jack, for limitation of liability.

Janury 28—4415, John W. Squires vs. Aaron Parker et al.

February 1—4642, Frank Robertson vs. steam barge Leland.

Judge Daniels, of New York, proposes to Congress that the United States Court for the northern district of New York hold special sessions in the winter and spring of each year at Buffalo for the hearing of such admiralty cases as might be brought before it, affecting the interests of the great lakes. The committee regarded the proposition favorably, but hesitated about the necessary expenditure of money. Vessel men and shippers on the lakes are interested in this matter, and are strongly urging that Judge Daniels' proposition be adopted. It is thought that the Congressional committee will take favorable action upon it.

MARINE RECORD

ESTABLISHED 1878.

Published Every Thursday by
THE MARINE RECORD PUBLISHING CO.,
Incorporated.
GEO. L. SMITH, President.

C. E. RUSKIN, - - - - Manager.
CAPT. JOHN SWAINSON, - - - Editor.
THOS. WILLIAMS, Chicago, - - Associate.

CLEVELAND, Western Reserve Building.
CHICAGO. Royal Insurance Building.

SUBSCRIPTION.
One Copy, one year, postage paid, - - $2.00
One Copy, one year, to foreign countries. - - $3.00.
Invariably in advance.

ADVERTISING.
Rates given on application.

All communications should be addressed to the Cleveland office.
THE MARINE RECORD PUBLISHING CO.,
Western Reserve Building, Cleveland, Ohio.

Entered at Cleveland Post-office as Second-Class Mail Matter.

CLEVELAND, O., DECEMBER 31, 1896.

PUBLISHERS' NOTICE.

The recent fire which destroyed all our type and practically ruined the presses on which THE RECORD was being printed, called forth an effort to refit the printing establishment and get back on the former basis. With this end in view work has pushed along lively and everything looked promising for our issue being out on regular time. There was, however, some unavoidable delay on Thursday afternoon, and Friday being a legal holiday no work was done, hence, the delay in our publication, for which we ask the leniency of our patrons and subscribers.

This number closes the ninteenth volume of THE MARINE RECORD, and we look forward to 1897 with the confidence born of experience in the goodwill of the marine fraternity. While not contemplating any radical changes in THE RECORD for the coming year, it will be our pleasant duty to endeavor to enhance the value of its columns, from every standpoint and so that we can point to the twentieth volume as being in advance of past files. The results of the past year's work have been gratifying and we have undoubted evidence that THE RECORD has grown in influence and the favorable estimation of its friends. As we have said, our efforts will in the future be turned to making the journal still closer to the ideal of an inclusive marine record, and this we can do with the liberal assistance of our patrons and subscribers. Many shining lights have sunk below the horizon during the past year, others are gaining in brilliancy and so will it be recorded each succeeding new year. To those who have "crossed the river" we bear a kind remembrance. To those who are still with us we wish a Happy and Prosperous New Year.

It has now been definitely decided to hold the annual meeting of the Lake Carriers' association at Hotel Cadillac, Detroit, Tuesday, Jan. 12. The meeting will be called to order at 10 o'clock. Charles H. Keep of Buffalo, secretary of the association, says that nearly all the members at the different ports were in favor of that date. It is as much of a guess as ever who the next president of the association will be. Heretofore the matter has always been fixed up several weeks before the date of the annual meeting, and there never was any doubt when the meetings were called to order who the next presiding officer would be. It is hinted that several Cleveland men would like the position and it is known that members at other ports would gladly accept it. There is possibly a slate arranged by some parties and in fact there may be two or three of them. However, the association is to be congratulated on having on its rolls such a quantity of excellent timber to select a president from.

THE NEXT PRESIDENT A CHICAGO MAN.

Now that there is a casting about for a candidate on whom the mantle of the next president of the Lake Carriers' Association should fall, and considering that Buffalo, Cleveland and Detroit has each had a representative, it may not be considered unwise to let the star of empire take its way and permit the greatest shipping port on the lakes, and in fact one of the leading shipping ports of the world to find the next president. Our contemporary has mentioned several names and duly canvassed the situation pro and con as between the several most available candidates, from one certain standpoint; but we would suggest in this issue, for the consideration of the vessel owners, the name of Captain J. S. Dunham, of Chicago, who has worked harder and done more for improvements in Chicago river and harbor than any other man. He has also been an active member of the Lake Carriers' Association in opposing a bridge across Detroit river and worked to the best of his ability for the entire interests of the lake marine, irrespective of locality.

The election of Captain Dunham would be hailed with pleasure by the vessel owners, line managers and others interested in marine matters at Chicago who are conversant with his zealous and earnest efforts on behalf of the marine of the lakes. Moreover, westward the election will go anyway, sooner or later, as the importance of the growing commerce influence and interests at the head of the lakes can not much longer be ignored, even in this degree, and it would be a fitting measure to permit destiny to work out its own course in this connection.

The Record makes this suggestion on the grounds of it being appropriate for Chicago to be recognized, and having done so, our duty therein ends, otherwise the sense of the majority rules and will no doubt be duly accepted as an equitable and just decision for all concerned.

LAKE LEVELS.

Major Clinton B. Sears, Corps of Engineers, U. S. A., in charge of the conservancy and improvement of rivers and harbors on Lake Superior, holds with Captain McDougall that the way to improve navigation on the lakes is by dams. He says:

"Based upon such knowledge as I have, I have formed the opinion that the only ultimate, permanent deep water improvements between Duluth and Buffalo must be obtained by slack water navigation construction; that is, a dam in the Niagara River to raise Lake Erie, and locks and dams between Lake Huron and Lake Erie. Of course if the channel of St. Mary's river has been deepened five feet and in the meantime the normal surface level has fallen three feet, there has been an absolute gain of only two feet. If, however, the normal surface of Lakes Huron and Michigan can be restored, then this extra five feet of depth will accomplish the twenty-foot navigation through that river. No suit for damages would probably have any standing in court for losses alleged to have been caused by simply raising the water to the original maximum high water mark. Now, should the original maximum high water mark be restored by the use of dams, there is no doubt in my mind that it would be perfectly practicable and that within the estimates already given to secure a twenty-foot navigation between Buffalo and Duluth. As far as the drainage canal at Chicago is concerned, while there is no doubt that it may lower the level of Lakes Michigan and Huron to some slight extent, it is yet a matter for determination as to whether it will materially interfere with navigation, providing dams be built as above suggested sufficiently high to raise the water level to the maximum high water mark."

FALL NAVIGATION.

The time is about drawing to a close when underwriters can rule the season of navigation as they have done from the earliest history of the lakes. The staunch wooden-built steamers Aurora and the City of Genoa simply give the schedule time for insurance the grand laugh, for they are still running with cargoes on Lake Erie and in so far as the weather is concerned may still continue. Arbitrary dates used also to be set by the Light-house Board for taking away buoys, stakes, day marks, light-ships and extinguishing the light at light-houses, as well as closing down fog signals. That era has now passed away and from this time on, lake commerce must be given a chance to progress in spite of the timidity—of some too careful owners of vessel property.

It is fitting that a Cleveland-built boat should take the initiative and hold out to the last; furthermore, the Corrigans are the people to do it. Davidson, of Bay City, with his wooden-built steamer City of Genoa, also dares the modern-built iron and steel steamers to prosecute their task with his wooden-built steamer, which arrived in Buffalo with grain from Toledo on Monday, Dec. 28, with 90,000 bushels of corn. The Aurora arriving on the 24th inst. at Buffalo, discharged and left again for Toledo to load grain.

It has now become almost useless to count the weather of one season as corresponding by exact dates with the past or even for a cycle of previous years. We do not mean to say that the weather is changing to any appreciable extent, but, it is quite certain that there are climatic conditions to be considered whereby insurance companies can not be so arbitrary in their limitation of the times of navigation on the lakes, either in spring or fall, as they have been in the past, and if domestic companies can't see this feature, foreign offices certainly will.

We have not consulted the owners of the Aurora or the City of Genoa relative to their insurance in ship, freight or cargo on these last trips, nor is there any occasion so to do, for the fact of the safe navigation on Lake Erie at this time amply speaks for itself and it is quite at the option of the assurer to accept business or leave it alone, even if importuned by a would-be assured.

At this writing there is some needle ice or light floes in the inner harbors and close to the shores on Lake Erie, but certainly nothing to stop special navigation, and as a winter route is maintained on Lake Michigan by less powerful boats than are laid up on Lake Erie by the underwriters, we look to see a more liberal policy, at least from some domestic offices next year. They at least are on the spot and their general managers ought and perhaps do know the exact weather condition existing; therefore, while there is cargo to be carried there ought to be offices to insure ship, freight and cargo.

We may go further, and say that if domestic companies won't take a risk after a certain date, then others will be found to step into the field and make money by accepting comparatively safe premiums.

The majority of our readers will have learned about the filibustering expedition undertaken by the little steamer Three Friends. No doubt they will also commend the excellent common sense and techincal view of the subject as enunciated by L. W. Nieman, editor of the Milwaukee Journal; at least we feel assured that those conversant with maritime courtesies and international law will. Editor Nieman says in his issue of the 29th inst.: "Certain papers have exploited the incident of the Three Friends in firing on a Spanish gunboat as an act of heroism and have gone so far as to call it a victory of the insurgent navy. Flaming headlines have announced these views as facts and fired the jingo heart with fresh enthusiasm. But quite a different phase is put on it by the cold legal facts. The Three Friends was a vessel sailing under the flag of the United States, engaged in an illegal enterprise. She mounted a gun and fired it against a friendly power in the proper discharge of its duties. In doing this, she committed an act either of war or of piracy. Which it is will be settled in the courts; either will condemn the vessel and send the officers and men to prison. Then the government may be called on to pay the damages."

The foregoing is, we think, an important and wise view of the action taken by the Three Friends.

The service of the weather bureau is undoubtedly becoming more valuable to the lake mariner; but this is to some extent due to the improvement in the construction of vessels and the change from sail to steam. When lake navigators had to rely on the winds alone, they could not afford to stake a run on the prediction of the weather bureau. Failure to get around the "corner" might mean the loss of a trip in the season's record. They were therefore inclined to take their chances, and in doing so not unfrequently got into trouble. It was very trying, for instance, for the master of a sail vessel bound from Chicago to Buffalo to stay in port with a strong and fair wind blowing, simply because of a prediction of the weather bureau that there would be a dangerous change. If he could by taking his chances get through the Straits before the predicted change came, he could perhaps run all the

way to Buffalo with the wind that would have headed his vessel off had it been encountered on Lake Michigan. The well-built three and four thousand ton iron and steel steamers having a good side out of water and with powerful engines, have little to fear from the ordinary lake storms, beyond a few hours detention, and in fact few of them are ever held in port on account of a change of weather being predicted. With passenger boats and smaller craft the case is of course very different and the storm predictions then become valuable.

LIBERAL POLICIES--LOW RATES.

There is said to be an intimation on the part of insurance men interested in what are called the foreign companies that there will be quite a material drop in the rates on steel bottoms next spring. It is known that the lake agents are on the watch for any chance to recover their lost business and say that they will make a cut that will settle the matter of competition at once. Still the fight is not over by any means, and so far as the lake agencies are concerned is not really begun.

A dispatch from Buffalo says: There is bound to be a sharp contest between the lake insurance agents and those representing ocean companies that are not located on the lakes directly. Little by little the best of the hull and cargo business has slipped away from the resident agencies, till they are in anything but good shape, and they are now engaged in finding some way of getting even. The report is that the ocean agencies are footing up the season's business as carefully as possible in order to see how stiff a fight they can safely carry on next season. At the same time the lake agencies are watching them as closely as they can, for they are in much better condition financially than they were last season. The hope is that the unusual amount of partial losses on A-I vessels, especially steel, which the ocean agents carried off mainly, and the comparatively small losses sustained on vessels held by the lake agents, may enable the latter to turn the tables on the ocean men and recover a good share of the lost business. A big fight will be made if there is any show for it.

ASSOCIATION OF LAKE LINES.

On January 5 the lake transit companies which are members of the recently formed association will meet in New York to ratify the proceedings of the preliminary meeting. The past season has shown that rate cutting is injurious to the earnings of the transportation lines, and the long anticipated organization was brought about in a great measure by the experience of 1896. A confederation composed of all the principal lines and the maintenance of rates are desired. The following companies are said to be members of the "Association of Lake Lines."

Detroit and Cleveland Steam Navigation, Company, Cleveland and Buffalo Transit Company, Western Transit Company, Union Steamboat Line, Erie and Western Transportation Company, Northern Steamship Company, Lehigh Valley Transportation Company, Union Transit Company, Minneapolis, St. Paul and Buffalo Steamship Company, Lake Erie Transportation Company, Clover Leaf Steamboat Line, Ogdensburg Transit Company, Port Huron and Washburn line of steamers.

The incorporation of the Joint Traffic Association, which includes the principal lines connecting New York and Chicago, in fact, all the lines, will undoubtedly be brought about. This would make the organized lake lines very strong, and would give them a position that could not be gained in any other way. The indiscriminate cutting of rates will be stopped if the association is able to do what it intends to do. The list of members includes nearly all the prominent lake companies which carry freight, other than ore and coal and lumber. With the aid of the Joint Traffic Association the lake line organization proposes to boycott every company which cuts rates. It is stated that the D. & C. Company lost $60,000 in fighting the Grummond Line this fall.

TO LENGTHEN THE STEAMER LEWISTON.

Capt. John Green of Buffalo, owner of the steamer Lewiston will probably enter into a contract this winter with the Chicago Ship Building Co. for adding 60 feet to the length of his composite built steamer Lewiston and also new top-sides. This will bring the Lewiston up to about a 3000 ton carrier and will no doubt be a paying investment for her owner. The Spokane of the Wilson Transit Line, lengthened by the Cleveland Ship Building Co. a couple of seasons ago, is a better ship than ever and it may be assumed that the earnings on her increased carrying capacity has easily paid for the cost of lengthening.

THE TOLEDO BRANCH.

The annual meeting of the Toledo branch of the American Association of Masters and Pilots of Steam Vessels was held Monday evening. The Toledo harbor was organized April 9, 1896, with twenty-four charter members and it now has thirty-five members. The officers elected are: Captain, Albert S. Fitts; first pilot, John J. Cunningham; second pilot, Homer Durand; captain's clerk, purser and purser's clerk, George E. Hardy.

Capt. Fitts made the following appointments: Chaplain, Edward A. Williams; starboard quartermasters, John Dunseith and George W. Disbrow; port quartermasters, Charles P. Sherbuo and Wallace King; saloon watchman, Harry Tyrie; forward deck watchman, Edward R. McNutt; trustees, E. A. William, John Dunseith and George E. Hardy.

MORE FIGURING ON NEW TONNAGE.

For the past two or three seasons the Northern Steamship Co. have been chartering other steamers in addition to their own splendid fleet of six large iron boats. It of course stands to reason that where it is profitable to charter, it would be of still more advantage to own. Such being the case, no one will be surprised to learn that the Northern Line are out for bids on two of the largest steel steamers ever constructed on the lakes, and while the Globe Iron Works Co. have built everything so far for the Northern Line, yet it is not positive that they will secure the present contract.

AN AMICABLE SETTLEMENT.

There is prospect of settling the Williams-St. Louis collision case without any resort to law. When the collision occurred at the Buffalo breakwater last summer the owners of the Williams undertook to set up the defense that as her engine was steamlocked the affair was an act of Providence and that she was not liable. But now some of the underwriters interested on both sides of the case are trying to effect a settlement from the Williams direct, and expect to succeed in a short time. The survey of the St. Louis called for $7,300 in new work, but the repair bills fell short of that amount several hundred dollars. J. L. Crosthwaite, the owner of the St. Louis, is not satisfied with the repairs and claims that the steamer will never be as strong again.

OHIO WEATHER.

The Weather Bureau has compiled a forecast of January weather for the various states, taking the averages from the data of the offices covering a period of 26 years. According to this report, the normal temperature of Ohio in January is 26. The warmest month was in 1880, with an average of 40 and the coldest, 1893, when it averaged 16. The highest January temperature was 71 on the 13th, 1890, and the lowest was 15 below, on the 29th, 1873.

The average precipitations for the month is 2.01 inches. The greatest monthly precipitation was 3.66 in 1873, and the least was .54 inches in 1881.

The greatest amount of precipitation recorded in any 24 consecutive hours was 1.51 inches on January 16th 1873. The greatest amount of snowfall in the same lengt of time was 9.8 inches, on January 16th, 1885. The average number of clear days is 4; partly cloudy, 11, and cloudy, 16. The prevailing direction of the wind is southwest, and the highest velocity recorded is 55 miles, on January 9, 1889.

CANAL BETWEEN LAKES ERIE AND ONTARIO.

A gentleman who was in Detroit during the sittings of the Deep Waterways Commission, and who took an active interest in the deliberations of that body, is authority for the statement that, should the Dominion government refuse to give its consent to the deepening of the St. Lawrence river to 21 feet, the American commissioners will recommend to their government that a canal be built between Lakes Erie and Ontario, commencing somewhere near Buffalo, the whole length of the course to be in United States territory. From this, vessels will sail down Lake Ontario to Oswego, whence a canal would be constructed through the Mohawk Valley to the Hudson river. It is claimed that on account of natural formation of the ground between Oswego and Albany, a canal 28 feet in depth could be constructed between those cities at a comparatively small cost. Such a plan if carried out would seriously affect the shipping business of Kingston, Montreal and Quebec.

PERFORATED SAILS FOR SPEED.

The Record printed an article some time ago showing the result of some experiments made by an Italian shipmaster in carrying perforated sails. Such an idea would have been scouted in the early days as one way of reefing a sail, always spoken of as an Irish reef, was to have, or put a hole in it to spill the wind out, lessen the pressure, etc. Now a writer in *La Nature*, a French periodical, has a recent article on perforated sails for vessels, and the advantages which they give. The *Literary Digest*, in a recent issue, gives a translation of the main points of the article, which is of value to all interested in sailing vessels, especially yachts. Perforated sails have long been in use by Italian sailors and are being adopted in Spain and England. M. Vassalo, an Italian writer on the subject, finds the speed of vessels considerably increased by the use of sails that will let part of the wind out. He has made a study of the size and location of the holes to secure the best results. The philosophy of the perforated sail is discussed as follows in *La Nature's* article: "It is easy to account, on general principles, with a little reflection, for the influence of the holes on the increase of a ship's speed. Several theories have already been advanced on the subject, but it may all be simply explained. In the ordinary system the wind rushes against the concave surface that is opposed to it; the currents of air bound back and hinder the full action of the currents that follow. Thus a counter-pressure is set up, and the work of the wind is only that due to the difference between its initial pressure and the counter-pressure thus produced.

"To increase the effective work, this counter-pressure must be reduced to a minimum, that is to say, a means of escape must be given to the air that accumulates in the sail. The aperture solves the question. For an analogous reason, rudders made of badly joined planks are used, especially in China, to allow the excess of water to pass. The water acts as a cushion, and hinders the movement of the rudder, but the effect is lessened by permitting the liquid to escape. Every time that an obstacle tends to lessen the speed of air or water there is hindrance and counter-pressure. If this retardation is avoided, we gain in power; the result is increased. That is what is gained by perforating the sails."

The paper in question also discusses the proper position of the perforations in the sails, the following being the points of interest: "Every perforated sail is better than a whole one. Nevertheless, the position of the holes evidently must have its influence, and therefore the perforation must not be performed hap-hazard. In square sails, Captain Vassalo made two holes at the base, six or eight inches wide, and their distance from the point of attachment was four to seven feet. In jibs and other triangular sails there was but one hole. The action of the perforations is double in the case of square sails oblique to the wind. The leeward hole relieves the sail of the dead air that keeps it back, and the windward hole allows the air that accumulates in front of the sail to pass through."

The Toledo Blade, in speaking of the question, makes the practical suggestion that the yachtsmen of that port give the new system a thorough trial to be made at a regatta the coming season. The best test would be upon a single vessel of the fleet, whose speed, as compared with that of other yachts, is well known. Let it use perforated sails, and if its average speed is increased, as compared with the other boats, the advantages of the perforations will be demonstrated beyond cavil.

As we have said, those accustomed to handling canvas would in nearly every instance consider such a proposition as piercing their sails to be almost idiotic. Yet, it should be borne in mind that even after the practice of centuries there is always something further to learn, and in this connection it is well to note how the many old positive forms and standing rules are being regularly exploded, condemned and replaced by newer and better ideas, etc.

MARINE ENGINEERS' BENEFICIAL ASSOCIATION NO. 1.

At the annual election of officers of Marine Engineers' Beneficial Association No. 1, of Buffalo, the following officers were elected: Frank Miller, president and representative; James L. Walker, vice president; Alfred E. Welch, recording secretary; Theodore A. Meyers, corresponding secretary; Peter Burns, financial secretary and treasurer; James Wixted, conductor; M. F. Hanna, doorkeeper; Frederick Hale, chaplain.

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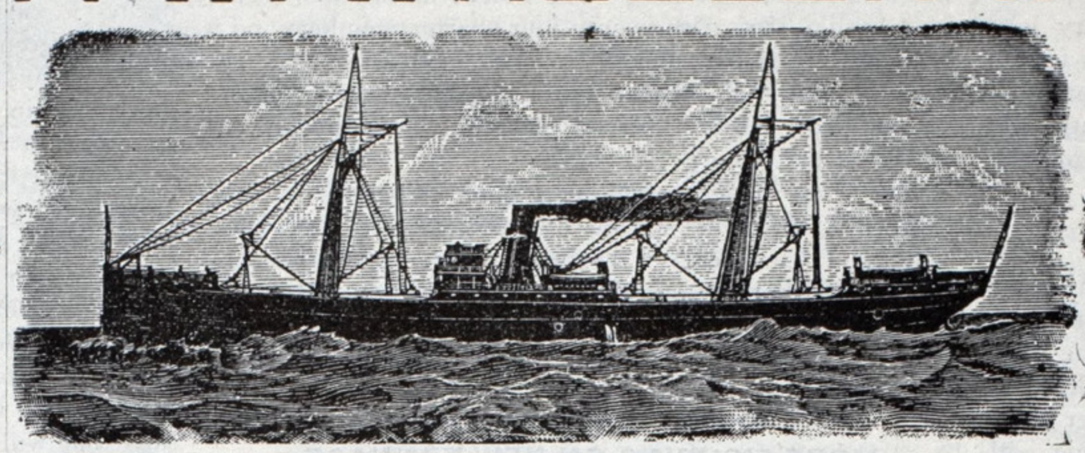

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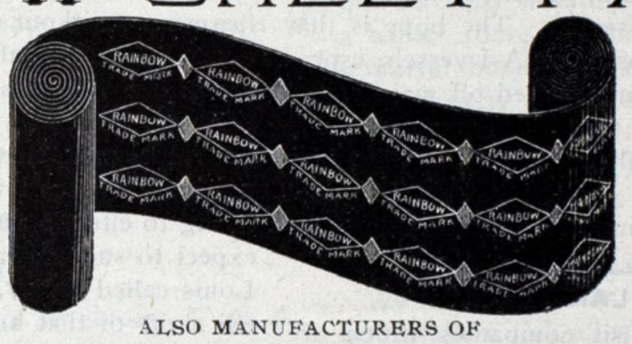

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CHICAGO RIVER IMPROVEMENTS AND THE NEW LAKE TONNAGE.

At a meeting of the Chicago Commercial Club in the Auditorium on Saturday evening last, the question of marine facilities was the leading topic, and we are pleased to quote in part the speech of Captain J. S. Dunham, of the Dunham Towing & Wrecking Co., on this subject.

Captain Dunham said: "In the past every protest against an obstruction and every move for the betterment of Chicago River has been called 'another vesselman's kick.' Now, I want to say to you in beginning my remarks that the vesselmen of the great lakes have cared but little about the improvement of the Chicago River. Until within the last year they were indifferent, for their boats went where the best freight was to be obtained, and it did not matter with them where their vessels traded.

"But in the year that is now so nearly gone this indifference has given way to a spirit of hostility. Owners of vessels that were built over three years ago are now beginning to comprehend most clearly what the twenty-foot channel between Chicago, Duluth, and Buffalo means. They see that the change in the type of boats from those drawing sixteen feet of water and carrying some 2,500 to 3,000 tons to those of deeper draft and 6,000 tons capacity is a permanent one, and the larger boats are to be the controlling factor in lake transportation. Opening the Chicago River to these larger vessels is clearly not to the interest of the owners of smaller craft. On these accounts I want to say that my position on the improvement of Chicago River is as a citizen and not as a vessel-owner.

"So quickly has the government work in making the twenty-foot channel been done that it has been nearly completed before the general public was aware of the fact. Before the next season of navigation is over the draft of water will be increased to over eighteen feet. Last winter every shipyard on the lakes was working to its full capacity in the construction of vessels built to utilize the new channel.

"There are now already under contract this winter thirteen vessels of the largest size. The new boats of the Rockefeller fleet alone will carry 1,600,000 tons of iron ore next season. It is estimated that one-third of the general traffic in coal, grain and iron ore next season will be done in these modern vessels, constructed to utilize the increased draft of water.

"By the opening of navigation next spring there will be twenty feet of water from the lake to all the elevators in South Chicago. Buffalo and Cleveland through their own efforts are moving to secure twenty feet. Duluth, through her own natural harbor, has that draft. Even cities as small as Manitowoc are putting forth heroic endeavors to be prepared for the opening of the twenty-foot channel.

"In what position is Chicago to meet the new demands upon its commercial facilities? Since the opening of the Government work in St. Mary's River last September, the shoalest spot between Chicago, Duluth, and Lake Erie is Washington street tunnel. There is now about sixteen feet of water over Washington and La Salle and eighteen feet over Van Buren street tunnel.

"Right here I will give a few figures. Before the opening of the Government work in St. Mary's River the usual ratio of freights between Chicago and Duluth in the grain trade was about 1 1-2 cents on wheat from Chicago, and about 3 cents from Duluth. There was then about 14 feet 6 inches of water in Lake Superior navigation, as compared with 16 feet over the Chicago tunnels, but as soon as boats could load as deep from Lake Superior as from Chicago, the ratio between the two ports was changed, and there is now but little difference in the cost of transportation between them. The lines showing the rates of transportation on Duluth and Chicago wheat frequently overlap each other on the charts. It will take but little more work by the Government before our great competitor in the grain trade on Lake Superior will have the advantage between eighteen inches and two feet more water than over the tunnels in the Chicago River.

"You all know the effects that such advantages will give our Lake Superior competitors. I will only add one technical point. Vessel-owners as a rule prefer sending their boats to Lake Superior instead of Lake Michigan, owing to the improved appliances for handling cargoes at Duluth and West Superior. On even terms Lake Superior will get the boats and Chicago must pay a premium in higher freight rates to bring them here.

"If the Chicago River is not to be improved to permit its navigation by the class of vessels now being built, and if competing points are to be given the advantage of deeper harbors and better facilities, then there is but one way in which this city can retain its water commerce, and that is by paying higher transportation charges. It is wholly unnecessary for me to tell the members of the Commercial Club what this means in the keen rivalry existing in all lines of commerce and trade.

"As tending to secure a better channel in Chicago River, the River Improvement Association was organized about a year ago. I had the honor of being elected its President. All its members saw the imperative necessity for beginnig work at once. Public sentiment backed up the aims of the association so successfully that an appropriation of $700,000 was secured at the last session of Congress for the river.

"We supposed that this appropriation covered both dredging and straightening of the channel; but the Washington authorities say that the wording of the appropriation is such that the money can only be used for dredging purposes. We are now endeavoring to have an amendment adopted by Congress which will make the balance, after dredging is paid for, available for straightening the channel.

"The opening of the river to all the principal elevators and coal docks for vessels of 400 feet keel and 48 feet beam, now the standard size, is not such a great job as many of you may imagine. The bridge at State street should be changed from a center pier to a bascule, like the one at Van Buren street. In the South Branch, the bridges at Harrison, Polk, Taylor, Eighteenth, Main, and Fuller streets must be changed to let the big boats through. In some the changes would be slight.

"The North Branch has some railroad bridges which must be overhauled, and the city structures at Indiana, Erie, and Division streets and Clybourn, Fullerton and Diversey avenues must be enlarged.

"There is no doubt the river can be made to accommodate the largest craft at an expense so small as to be considered trifling when the great interests involved are taken into account.

"When this is done there are still the tunnels to be cared for. A great many people ask me if I believe they can be lowered to give a draft of twenty feet over them. I say most positively, yes, and instead of twenty feet there should be twenty-six. If the tunnels are to go down the draft of water over them ought to be sufficient not only for the present hour, but for many years to come.

"Three competent engineers have informed me that it would be feasible to lower the tunnels with the stoppage of street car traffic for only a few days. Their plan is to leave the roof as it is, but go down with the founda-

tions and side walls some ten or twelve feet. The tracks would be left on trusses or supported in some way, while the space between the old bottom of the tunnel and the new bottom was being excavated and rebuilt. The new tracks could be laid and everything prepared for the cable while the cars were still running on the old tracks. All the time that would be lost would be taken up by the removal of the old tracks and supports. After the cars were running on the new tracks the crown of the tunnel could be removed, the river could be coffer-dammed in sections without stopping navigation, or a new roof could be built and the old one then dredged or blasted off.

"The procedure which the River Improvement Association will doubtless follow to secure the lowering of the tunnels will be by a petition to the Secretary of War against them as obstructions to navigation. During the last season a number of boats have caught on both Washington and La Salle street tunnels. A statement of every such stranding has been prepared for future action. When the association decides that it is time to go ahead these statements will be sent to the War Department at Washington with a formal complaint against the tunnels as 'unreasqnable obstructions to navigation.' If the Secretary of War follows the usual custom the complaint will be returned to the United States engineer stationed at Chicago and in charge of the government of the river. He will at once investigate the complaint, and if the River Improvement Association can convince him that the tunnels are 'unreasonable obstructions to navigation,' he will so report to the War Department. It is seldom that the report of the engineer in charge is overruled by the Secretary of War, and if it is not in this case the War Department will order the owners of the tunnels to lower them, or, in other words, to remove the obstructions. If the owners refuse to do so

GALLEY SEVEN—Marine Record—Dec. 30

then it is the duty of the United States District-Attorney to begin suit, but you well know that the beginning of a lawsuit is far from its end.

"Where are the growing cities of the middle West located? Where lake transportation is available. Cleveland has outstripped Cincinnati. Buffalo is the most thriving city in the Empire State besides New York. Detroit, Milwaukee, Duluth, and a score of smaller places have made wonderful strides and are outstripping their rivals which have not the advantages of cheap water transportation. Chicago escaped the threatened and anticipated collapse after the World's Fair, and the recent election showed that its population had made a remarkable gain.

"There can be but one cause for this great advance in all lake cities, and that cause is the advantage cheap water transportation gives them. Up to the present this city has been on an equal plane with its rivals on Lake Michigan and Green Bay, and had a material advantage over Duluth on account of the limitation of draft in getting from Lake Superior to Lake Huron. With this limitation removed, the grain trade must face a sharper competition from Lake Superior ports than ever before. With the completion of the twenty-foot channel this sharpened competition will extend all along the line from South Chicago to Duluth.

"Whether or not this city is to be in a position to meet such competition will depend largely upon the members of the Commercial Club. If the men who comprise this great organization make up their minds that the river must be improved and the tunnels lowered it will go far toward leading public sentiment in that direction, and it will be accomplished."

WILL MOVE TO CANADA.

The Holland & Emery Lumber Company, which has its nominal headquarters at East Tawas, but which is controlled by Nelson Holland of Buffalo, is preparing to move the big sawmills from that point to Byng Inlet on Georgian Bay, just as soon as the ice goes out in the spring. This company handles about 45,000,000 feet of logs, bringing them to Tawas from their Canadian lands in rafts. They have now concluded to do all their sawing in Canada. The mills are already partly dismantled. They will be moved on vesesls as nearly intact as possible. As it will be impossible to begin pile driving and dock building at Byng Inlet till forst is out of the ground it will probably be August before any sawing is done there.

A LARGE NEW DRY DOCK.

The directors of the Union Drydock Company have appropriated enough money to build a new drydock on property now owned by the company in Buffalo. It will be built large enough to receive a vessel 500 feet long and of 50 feet beam. Engineers are now at work on the plans. Drydock No. 1 will also be widened and deepened this winter, so as to take in vessels 350 feet long and 45 feet beam, and leave five feet of clear space on the keel blocks.

The small steamer Charles West of the Arnold line, operated in the Straits of Macinac, is at Manistee and during the winter will be lengthened 26 feet.

Capt. John Isbister who had charge of the steamer Josephine during the past season, will next season command the steamer Samoa.

WANTED.

Tug suitable for fishing purposes, about 80 ft. long and 14 feet beam, with power suitable for purpose mentioned. Desire boat built within past six years. Price must be reasonable. Address W. B., care of MARINE RECORD.

TUG WANTED.

Parties would consider the purchase of a good light-draft tug 6 or 7 feet. Price must be very low. Good power and sufficiently seaworthy to go outside in any weather. Address Box L., THE MARINE RECORD.
48-51

WANTED.

Advertiser wants to purchase a steam barge, having a capacity of 200 to 250 M feet of lumber on a draft of 7 or 8 feet. Must be in good condition. For further particulars apply to Kendall Marine Reporting Co., Port Huron, Mich.

PROPOSALS.

U. S. Engineer Office, Duluth, Minn., Dec. 14. 1896. Sealed proposals, in triplicate, for building breakwater at Presque Isle Point, Marquette, Mich., will be received here until noon, Jan 11, 1897, and then publicly opened. Information furnished on application. Clinton B. Sears, Major Engrs. 51-1

U. S. Engineer Office, Duluth, Minn., Dec. 16, 1896. Sealed proposals for dredging about 21,000,000 cubic yards in the harbor of Duluth, Minn., and Superior, Wis., will be received here until noon Feb. 15, 1897, and then publicly opened. Information furnished on application. Clinton B. Sears, Major Engrs. 52-6

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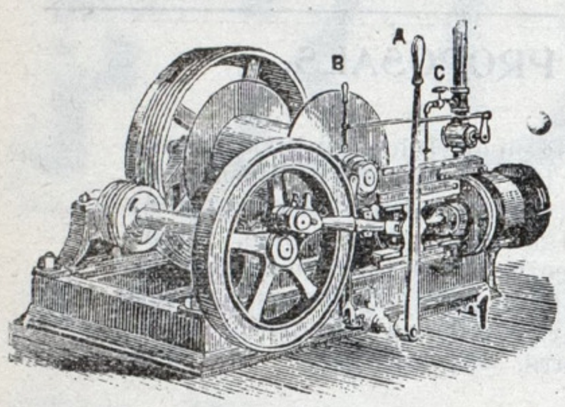

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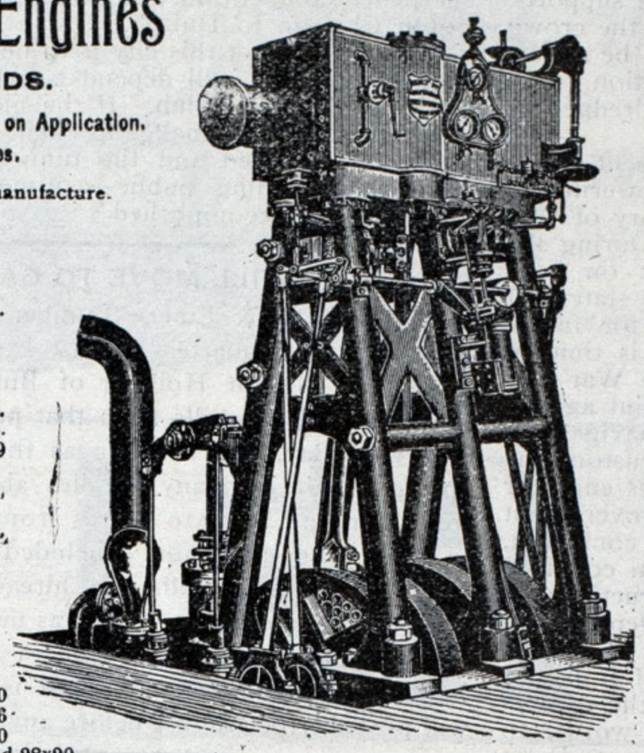

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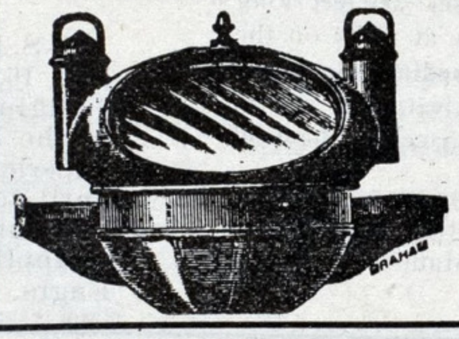

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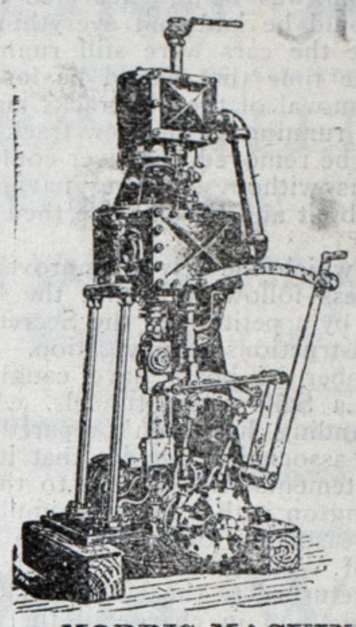

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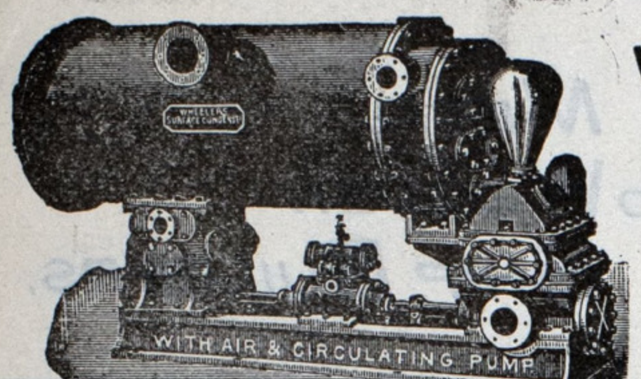

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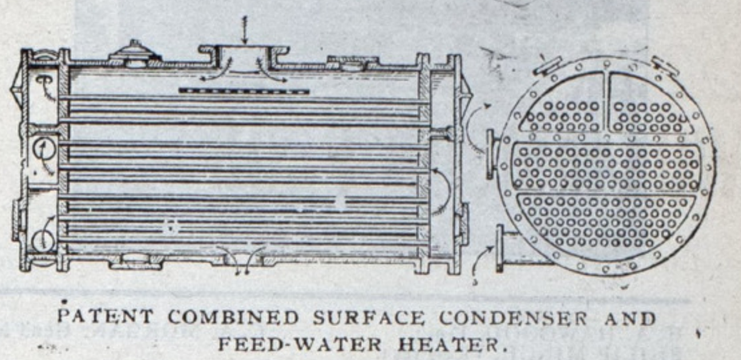

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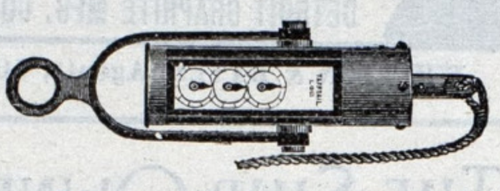

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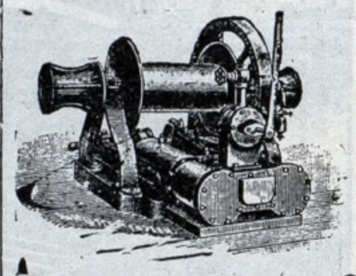

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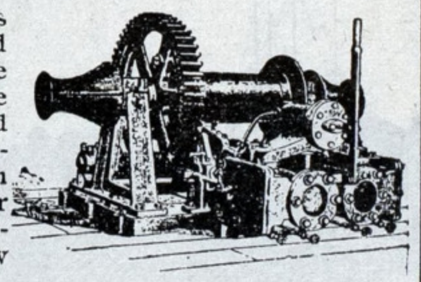

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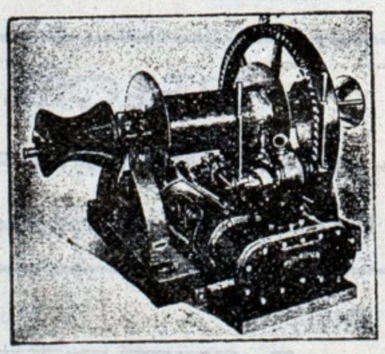

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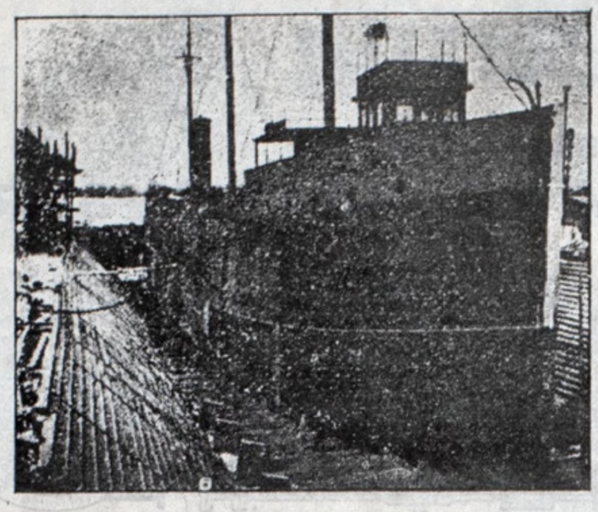

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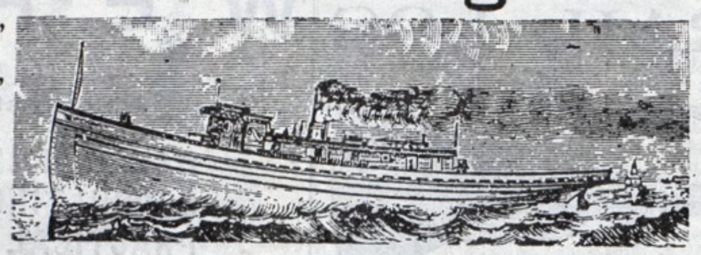

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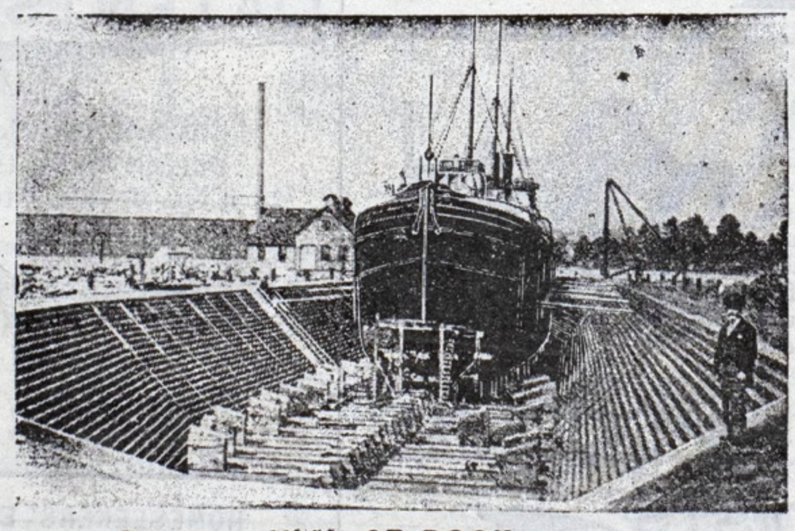
WEST SUPERIOR, WIS., and also at EVERETT, WASH.

PHOTOGRAPH OF 300 FT. BOAT IN DOCK.

Plates and Material Always on Hand to Repair all kinds of Metal Ships in Shortest Time.



Best Quality of Oak in Stock for Repairing Wooden Vessels of all Classes.

SIZE OF DOCK

Length, Extreme	537 feet.	Entrance, Top	55 feet 9 in.
Breadth, Top	90 " 4 in.	Entrance, Bottom	50 "
Breadth, Bottom	52 "	Depth over Sills	18 "

LARGEST DRY DOCK ON THE LAKES.

PRICES FOR REPAIRS AND DOCKING SAME AS AT LOWER LAKE PORTS. SUPERIOR, WIS.

A NUMBER OF PROPELLER WHEELS IN STOCK AT DRY DOCK.

A. GILMORE'S SONS,

DRY DOCKING SHIP BUILDING AND REPAIRING.

EAST SIDE, NEAR IRONVILLE. - - - TOLEDO, O.

Dimensions of Dock, 236 feet long, 55 feet wide at top and 37 feet wide at gate. Nine feet water over sill.

RATES OF DOCKING, Ten Cents per Registered Gross Ton for Vessel over 200 Tons.

Jig Mill and Planer in connection with Dock. PHONE NO. 157.

Paint your Vessels with **Superior Graphite Paint**

NO BLISTERING, CRACKING OR SCALING.

Made especially for Stacks, Decks, Sides, Hulls and Water Compartments. Strictly anti-rust, and most durable and economical.

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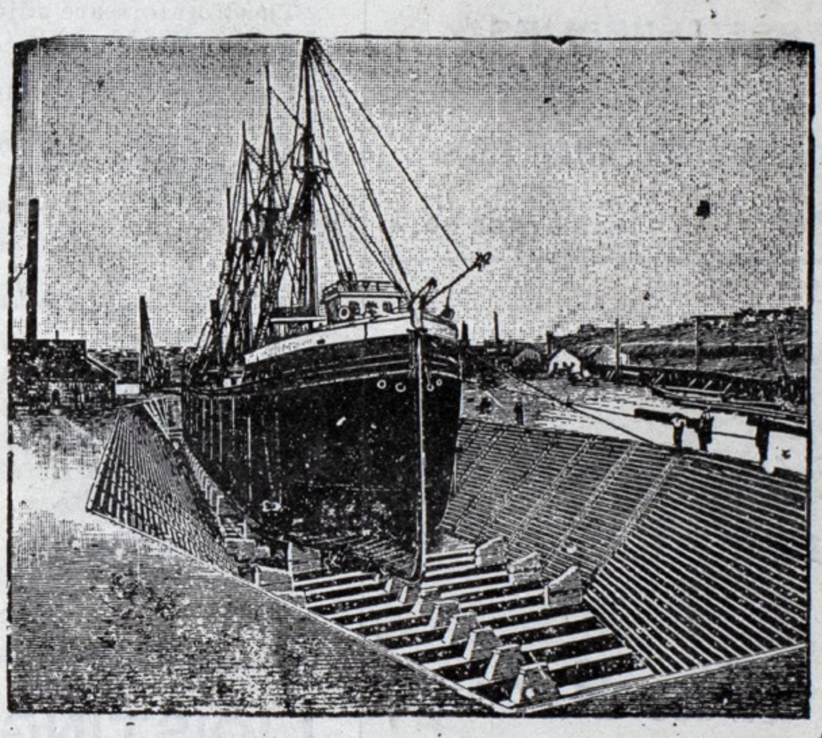
THE SHIP OWNERS DRY DOCK CO.

Largest DOCK YARD on the GREAT LAKES.



Capacity with Two Docks to Dock the Largest Ships on the Lakes.

GENERAL REPAIR WORK PROMPTLY ATTENDED TO.

Being equipped with Lucigen Lights we do work at night as well as day.

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